DOCKETED

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Project Title:	Humboldt Bay Generating Station - Compliance
TN #:	204528
Document Title:	Site Boundary Expansion & Project Modification
Description:	Petition to Amend to expand the site boundary
Filer:	John Carrier
Organization:	CH2M HILL
Submitter Role:	Applicant Consultant
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Pacific Gas and Electric Company®

Humboldt Bay Generating Station
1000 King Salmon Ave.
Eureka, CA 95503-6859

HBGS-CEC-098

May 7, 2015

Mr. Jonathan Fong
Compliance Project Manager
California Energy Commission
Energy Facilities Siting and Compliance Division
1516 Ninth Street, MS 2000
Sacramento, California 95814-5512

Subject: Humboldt Bay Generating Station - Petition for Project Modification (06-AFC-07C)

Dear Mr. Fong:

Enclosed please find a Petition for project modification for the Humboldt Bay Generating Station (HBGS), in compliance with Section 1769 of the California Energy Commission Siting Regulations. The purpose of this Petition is to modify the HBGS site boundary once decommissioning and restoration of the adjacent Humboldt Bay Power Plant are complete. The Petition also proposes the modification and utilization of certain infrastructure within the expanded boundary.

The Petition addresses the modification of one Condition of Certification and proposes the addition of a new Condition. The modification would not result in any environmental impacts or inconsistencies with Laws, Ordinances, Regulations, or Standards (LORS).

Should you have any questions, please contact me at 707-269-1810.

Sincerely,

Chuck Holm
Humboldt Bay Generating Station Manager

attachment

Project Modification

Humboldt Bay Generating Station

(06-AFC-07C)

Site Boundary Expansion and Project Modification

Submitted to the

California Energy Commission

Pacific Gas and Electric Company™

May 2015

With Assistance from:

Strachan Consulting, LLC

and

ch2m

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Acronyms and Abbreviations

CCA	California Coastal Act
CBSC	California Building Standards Code
CCC	California Coastal Commission
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH2M	CH2M HILL
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CPM	Compliance Project Manager
DTSC	California Department of Toxic Substances Control
FS	Feasibility Study
FSR	Final Site Restoration
GHG	greenhouse gas
HBGS	Humboldt Bay Generating Station
HBPP	Humboldt Bay Power Plant
HCSD	Humboldt Community Services District
IM/RAW	Interim Measures Removal Action Plan
ISFSI	Independent Spent Fuel Storage Installation
kV	kilovolt
LID	Low Impact Development
LORS	Laws, Ordinances, Regulations, and Standards
LOS	level of service
NCRWQCB	North Coast Regional Water Quality Control Board
NPDES	National Pollution Discharge Elimination System
N_2O	nitrous oxide
NO_x	oxides of nitrogen
NRC	Nuclear Regulatory Commission
PG&E	Pacific Gas and Electric Company

$PM_{2.5}$	particulate matter less than 2.5 microns
PM_{10}	particulate matter less than 10 microns
RAP	Remedial Action Plan
ROG	reactive organic gas
SO_2	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
TCR	The Climate Registry

SECTION 1

Project Overview

1.1 Background

On September 24, 2008, the California Energy Commission (CEC) granted a license to Pacific Gas & Electric Company (PG&E) to construct and operate the Humboldt Bay Generating Station (HBGS). Construction began in September 2008, and the HBGS commenced commercial operation in October 2010. The commercial operation of the HBGS enabled PG&E to shut down the Humboldt Bay Power Plant (HBPP), located adjacent to the HBGS on the same 143-acre parcel. The HBPP consisted of two steam generating units (Units 1 and 2) and a boiling water nuclear reactor (Unit 3). The two steam generating units began operation in 1956 and 1958, respectively, and were shut down in 2010. The nuclear unit operated between 1963 and 1976. It was put into SAFESTOR in 1985. In 2005, an Independent Spent Fuel Storage Installation (ISFSI) was permitted on the HBPP site to store the Unit 3 spent fuel until a federal repository is available. Construction of the ISFSI was completed in 2007, and the fuel was transferred to the ISFSI in 2008.

The HBGS start of operation and transfer of the nuclear fuel storage to the ISFSI marked a new beginning at the HBPP plant site. PG&E could commence with the termination of the Unit 3 Nuclear Regulatory Commission license through the decommissioning and the eventual restoration of the HBPP site. Once the HBGS began commercial operation, decommissioning of Units 1, 2, and 3 began in earnest. Units 1 and 2 were removed in 2010. Removal of Unit 3 will be completed in 2017. Restoration of the HBPP site will begin once the Unit 3 structures are removed. Site restoration is anticipated to be complete in December 2018.

The decommissioning and restoration of the HBPP site presents opportunities for HBGS to expand functionality and improve operational efficiency. Space was limited when the HBGS site was permitted because of the presence of HBPP and surrounding wetlands. The decommissioning and restoration of the HBPP provides HBGS with an opportunity to modify its site boundary to take advantage of the additional space that will become available as a result of the decommissioning of the HBPP and the restoration of the plant site, once those activities are complete.

The purpose of this Petition is to modify the HBGS site boundary once HBPP decommissioning and restoration are complete. The boundary expansion will provide HBGS space for laydown, storage, contractor parking during maintenance/outages, and potential future use. The boundary expansion will also enable HBGS to use HBPP infrastructure developed for decommissioning. PG&E also proposes to make Alpha Road, originally installed as a temporary construction access road for HBGS construction and later used for HBPP decommissioning, a permanent road. Specifically, a component of HBPP site restoration will include paving, upgrading, and widening the entrance of Alpha Road at King Salmon Avenue. PG&E then proposes as part of this Petition to make Alpha Road the main access road to the HBGS. The existing HBPP main access road, called Bravo Road, which was originally planned to be the main HBGS access road, will provide secondary access. In addition, a worker parking area at HBGS where Alpha Road enters the plant will also be established within an existing graveled area within the HBGS site. Lastly, HBGS will manage the stormwater system that will be installed as part of HBPP site restoration and located within the expanded site boundary.

PG&E requests that the proposed site boundary and project modification not take effect until HBPP decommissioning and restoration are complete because those activities are being directed by the California Coastal Commission (CCC) under its Coastal Development Permit (CDP) authority. This Petition is being submitted now so that it can be considered while the CCC evaluates the HBPP Final Site Restoration (FSR) Plan. PG&E believes that coordination between the CCC and the CEC should begin now in order to prevent potentially duplicative requirements and jurisdictional confusion. A CDP for the FSR Plan was required to be

submitted to the CCC by April 30, 2015[1]. Section 2.1.1 describes the specific items to be considered by the CEC under this Petition. Section 2.1.2 of this petition describes the specific permitting activities under the CCC's jurisdiction included in the FSR Plan.

The proposed modification will not result in any significant environmental impacts or non-compliance with any Laws, Ordinances, Regulations, and Standards (LORS). The modification will, however, result in the proposed addition of a Condition of Certification for documenting the completion of remediation and restoration activities for determining when the expanded site boundary may be enacted. The modification will also result in a modification to Condition Soil & Water-3 to address modifications to the HBGS General National Pollution Discharge Elimination System (NPDES) Permit for Discharges of Stormwater Associated with Industrial Activity, and the Stormwater Pollution Prevention Plan (SWPPP) to address HBGS's management of the stormwater management system within the expanded boundary.

1.2 Description of Proposed Project Modification

The 5.4-acre HBGS site is spatially constrained. The power plant was constructed within a disturbed portion of the HBPP site. Wetland avoidance was a primary goal in developing the HBGS site layout. A larger site would have meant eliminating wetland habitat, specifically in the Buhne Slough salt marsh, which is located adjacent to the HBGS plant site.

The additional 6.3 acres made available as a result of HBPP decommissioning will increase the total site area to 11.7 acres, enabling HBGS to use much-needed space for maintenance laydown, equipment storage, contractor maintenance parking, and potential future expansion, once HBPP decommissioning and restoration are complete.

The completion of HBPP decommissioning and restoration also enables HBGS to take advantage of using existing HBPP decommissioning infrastructure. Specifically, HBGS proposes to convert the HBPP Waste Management Building for use as a warehouse. The Waste Management Building is currently a three-sided building used during decommissioning and restoration for sorting, sampling, monitoring, loading, weighing, and other processing of waste materials prior to shipping them to an appropriate disposal site. Currently, HBGS is using a warehouse that is located offsite for materials storage. Using the existing Waste Management Building as a warehouse will allow for more efficient movement of parts and materials to and from the HBGS plant buildings. An on-site warehouse will also reduce traffic from HBGS staff traveling to and from the off-site warehouse. The Waste Management Building will require the addition of a fourth wall to convert it to a warehouse. In addition, a fire suppression system and restroom facilities will be installed. Lastly, potable water, firewater and sanitary sewer pipelines will be constructed. Modifications to the building will be done in compliance with Condition GEN-1.

Within the expanded boundary, HBGS proposes to utilize the area originally occupied by Units 1, 2, and 3 for laydown, storage, contractor parking during maintenance/outages, and potential future use. The area will be graveled as part of HBPP site restoration. In addition, a road will be paved to enable vehicles to travel to the Waste Management Building (HBGS warehouse).

HBGS also proposes to use the temporary construction access road (referred to as Alpha Road), which was originally built to construct the HBGS plant and later used for HBPP decommissioning, as the permanent, main access road to the HBGS once decommissioning and restoration are complete. The existing HBPP main access road (Bravo Road), which was originally to have been the main HBGS access road, will provide secondary access. As part of site restoration, Alpha Road will be paved, upgraded in some areas to enable it to accommodate heavy loads, and widened at the entrance at King Salmon Avenue. Alpha Road is necessary as a permanent entrance road because of heavy haul access considerations. From Highway 101, the road

[1] Special Condition 3 of CDP E-09-010 for HBPP decommissioning required that the CDP application be submitted by March 31, 2015. However, that date was extended to April 30, 2015.

interconnects with King Salmon Avenue before the King Salmon Avenue Bridge over Buhne Slough. This bridge is not rated to accept heavy loads (The existing HBPP access road, referred to as Bravo Road, turns off of King Salmon Avenue after crossing this bridge.). Heavy haul access is needed to remove the ISFSI casks when a high-level waste repository is available. The road will also be used if the HBGS reciprocating engines require replacement at some point, and for the transport of backup transformers for the HBGS switchyard and 60-kilovolt (kV) substation in the event of transformer failures.

Where Alpha Road enters the HBGS, PG&E also proposes to include a worker parking area for HBGS personnel. The size and number of parking spaces will be in compliance with Humboldt County requirements.

Lastly, within the expanded boundary, HBGS will manage the stormwater management system that will be installed as part of HBPP site restoration.

Section 2.1.3 provides a detailed description of the proposed modification.

1.3 Necessity of Proposed Modification

Sections 1769 (a)(1)(B) and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed modification to the HBGS project and whether the modification is based on information known by the petitioner during the certification proceeding. The 5.4-acre HBGS site is spatially constrained. Expanding the site boundary by 6.3 acres will provide HBGS with additional needed space for maintenance laydown, equipment storage, contractor maintenance parking, and potential future expansion. It will also enable HBGS to use existing infrastructure (the Waste Management Building) developed for HBPP decommissioning. The use of Alpha Road for primary access will enable Bravo Road to be used by HBGS as secondary emergency access, enhancing plant safety. The modifications included in this petition were not envisioned during the certification proceeding. The focus at that time was on developing and constructing the HBGS to enable the 50-year old HBPP to be shut down and decommissioned. Specific plans for HBPP decommissioning and site restoration had not yet been developed at that time.

Section 2.2 provides information regarding the necessity of the proposed modification.

1.4 Summary of Environmental Impacts

Section 1769 (a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address impacts that the proposed modification may have on the environment and proposed measures to mitigate any significant adverse impacts. Section 1769 (a)(1)(F) requires a discussion on whether the proposed modification affects the facility's ability to comply with applicable LORS. The expansion of the HBGS boundary, modifications to the Waste Management Building for use by HBGS as a warehouse, use of Alpha Road for primary access, the establishment of an on-site worker parking area, and management of the stormwater system will not result in any environmental impacts and is consistent with LORS.

Section 3 provides an environmental analysis of the proposed modification and information regarding its consistency with LORS.

1.5 Consistency of Modifications with License

Section 1769 (a)(1)(D) of the CEC Siting Regulations requires a discussion of the consistency of the proposed project modification with the assumptions, rationale, findings, or other bases of the Final Decision and whether the modification is based on new information that changes or undermines the bases of the Final Decision. Also required is an explanation of why the modification should be permitted. The proposed modification does not undermine the assumptions, rationale, findings, or other basis of the Final Decision for the project. In addition, the proposed modification should be permitted because it will provide the HBGS

additional space in which to function more efficiently. It will also enable the HBGS to have a secondary, emergency access route to and from the plant.

1.6 HBPP Decommissioning and Restoration Regulatory Framework

The following sections provide background information on the regulatory framework for HBPP decommissioning and restoration, including the responsibilities of the primary agencies.

There are four primary regulatory agencies involved in the decommissioning and restoration of the HBPP. The agencies are the Nuclear Regulatory Commission (NRC), the California Department of Toxic Substances Control (DTSC), the North Coast Regional Water Quality Control Board (NCRWQCB), and the CCC. These agencies have the primary permitting authority over HBPP decommissioning and restoration by ensuring that radiological and chemical contamination is remediated, stormwater during and after decommissioning and restoration is appropriately managed, and decommissioning and restoration plans are approved and implemented. These activities preclude the HBGS boundary modification from being actuated until these activities are completed. Each agency and its specific decommissioning and restoration responsibilities are discussed further below.

1.6.1 Nuclear Regulatory Commission

The NRC is the lead agency for the nuclear license termination for Unit 3. The NRC is responsible for ensuring, through regulations and other guidance, that appropriate procedures are followed in the decommissioning of a nuclear facility to protect the health and safety of the public. The NRC has exclusive jurisdiction over radiological aspects of the decommissioning activities including radiological clearance of any areas planned for excavation or other ground disturbance activities as part of remediation or restoration implementation efforts. Soil remediation and Final Site Surveys to determine that cleanup goals have been met will continue through decommissioning and restoration. Results of the Final Site Surveys will be compiled into Survey Area Reports and submitted to the NRC for concurrence that the area meets the NRC-approved release criteria. Once all areas have been shown to meet the clearance criteria, the NRC may then terminate the 10 CFR 50 license for the site. The ISFSI will continue to be licensed under 10 CFR 72.

1.6.2 California Department of Toxic Substances Control

The DTSC has authority over chemical contamination. In 2009, the DTSC approved an Interim Measures Removal Action Plan (IM/RAW) to govern the management of soil generated by the decommissioning project (ARCADIS, 2009). The IM/RAW ensures consistency for managing soils excavated as a result of ongoing decommissioning, demolition, and restoration activities at the HBPP where chemical contamination may exist. PG&E recently submitted for DTSC approval, a Feasibility Study (FS) and Remedial Action Plan (RAP, combined FS/RAP). The FS/RAP updates the soil contaminant screening thresholds and addresses the restoration and redevelopment of the HBPP. The plan will supersede the IM/RAW once approved, and a decommissioning/restoration soil management plan will be prepared to replace the IM/RAW to address soil management during the remaining decommissioning and restoration activities. Ultimately, the DTSC will issue a Certificate of Completion for the site when the DTSC has determined that all chemical contamination has been appropriately remediated to DTSC-approved standards.

1.6.3 North Coast Regional Water Quality Control Board

PG&E is required by the NCRWQCB to prepare a stormwater management plan for the HBPP site post-decommissioning. Specifically, the plan is to include details on proposed stormwater treatment measures to address impacts associated with stormwater runoff quality and quantity from all remaining impervious surface areas associated within the HBPP footprint. In addition, the plan is to utilize Low Impact Development (LID) techniques where practicable.

To ensure that HBPP stormwater management was addressed as part of decommissioning, the NCRWQCB imposed a permit condition (Condition 12) to prepare a HBPP post-decommissioning stormwater management plan, as part of the HBGS 401 Water Quality Certification. In 2008 when the HBGS 401 Certification was issued, HBPP decommissioning plans were in their infancy. It was unclear at that time what permits, if any, the decommissioning project would require from the NCRWQCB. Including the requirement to prepare a HBPP stormwater management plan as part of the HBGS 401 Certification ensured that a plan for the HBPP site which included LID measures would be prepared and submitted to the NCRWQCB. Originally, the plan was to be submitted upon completion of construction of the HBGS. However, the condition was amended in September 2009 to require that it be submitted by March 31, 2015, when further information regarding the HBPP decommissioning and site restoration was available. That date was later extended to May 30, 2015.

The FSR Plan developed for the HBPP incorporates the post-decommissioning stormwater management design for the HBPP. The stormwater management system will be installed during HBPP restoration. The stormwater management plan is being developed for the HBPP site and will be provided to the CEC once the plan is finalized.

1.6.4 California Coastal Commission

In accordance with Section 30600(a) of the California Coastal Act (CCA), any person wishing to perform or undertake development in the coastal zone, in addition to obtaining any other permit required by law from any local government or from any state, regional, or local agency, shall obtain a CDP.

Decommissioning and restoration of the HBPP constitutes development under Section 30106 of the CCA, which provides in part that development includes, "grading, removing, dredging, mining, or extraction of any materials…" and "construction, reconstruction, demolition, or alteration of the size of any structure…".

Although Humboldt County has a certified coastal program and is typically the lead agency for issuing a CDP for development in the coastal zone within Humboldt County, the CCC has retained CDP jurisdiction for the area encompassing the HBPP property. Since 2007, the CCC has issued numerous CDPs authorizing the activities necessary for PG&E to demolish Units 1, 2 and 3; to conduct site remediation activities; and to terminate the NRC license.

The HBPP decommissioning CDPs also include a provision for PG&E to prepare a final restoration plan for the site following the removal of the HBPP structures. As an example, Special Condition #3 of CDP E-09-010 requires PG&E to prepare the final restoration plan and submit this CDP application no later than March 31, 2015[2]. The Special Condition states the following:

> No later than March 31, 2015, the Permittee shall submit a coastal development permit application describing proposed measures to restore the areas affected by the development activities approved pursuant to this permit. The Permittee may request the Executive Director extend this deadline upon a showing of good cause (Coastal Development Permit, E-09-010, Special Condition 3, page 5 of 6, December 17, 2009).

Several other CDPs issued for other HBPP decommissioning activities also included a permit condition requiring that a CDP application be filed to address site restoration[3].

On April 30, 2015, PG&E submitted a CDP application for the restoration of the HBPP site. The application includes the FSR Plan, which divides the site into 12 functional areas and describes the specific restoration/reuse plan for each area. Also included was a Coastal Resources Assessment, which addresses

[2] At PG&E's request, the CCC extended this date to April 30, 2015.

[3] CDPs with permit conditions requiring that a CDP application be filed for site restoration include: E-07-005, E-08-008, E-09-005, and E-09-010-A3.

CCA and California Environmental Quality Act (CEQA) provisions regarding implementation of the plan. The FSR Plan, including the Coastal Resources Assessment, is provided in Appendix A.

1.7 Scope of California Energy Commission Analysis

PG&E requests the CEC to process this Petition in accordance with Section 1769 of its regulations and the well-established principles of practice that CEC has followed when processing other petitions for amendment. This Petition has been prepared in accordance with those principles, focusing on comparing the modifications proposed herein for the modified project to those of the approved project as described in the Final Decision. Specifically for this Petition, the CEC should treat all of the decommissioning and restoration activities described in the FSR plan as being complete and baseline conditions. The CEC analysis should then focus on what activities will be performed by HBGS. A summary of those specific activities is presented in Section 2.1.1.

SECTION 2

Description of Project Modification

Consistent with the CEC Siting Regulations Section 1769(a)(1)(A), this section includes a description of the requested project modification, as well as the necessity for it.

2.1 Background

PG&E operated the HBPP between 1956 and 2010 on a 143-acre parcel in Humboldt County, California (see Figure 2-1). The HBPP provided—and now the HBGS provides—a large percentage of the electrical power used in Humboldt County, an electrical service area that can be referred to as the Humboldt load pocket. The Humboldt load pocket consists largely of the greater Humboldt County area. In terms of electrical demand, it functions almost as an island at the northwestern extremity of PG&E's electrical system. Imports to and exports from the load pocket are constrained because of the existing structure of the transmission system. Winter storms regularly upset the transmission infrastructure, and considering the remoteness of much of the transmission system, it is imperative that reliable generation with rapid response capability be located within the load pocket. The seasonal operation of other power providers also makes HBGS essential. For these reasons, regional electricity demand is largely served by the HBGS.

PG&E is decommissioning the HBPP and is seeking termination of its NRC license to own and operate the Unit 3 nuclear reactor. As part of the decommissioning effort, PG&E has prepared a plan for restoration of areas on the HBPP site where Units 1, 2, and 3 and associated buildings, storage facilities, and appurtenant structures once stood. Areas will be restored to pre-decommissioning project conditions and wetland creation, or will be repurposed to support the HBGS and future power generation-related activities on the property. Areas already committed for other operational needs, such as the ISFSI, will continue.

The purpose of this Petition to amend the HBGS license is to modify its site boundary once HBPP decommissioning and restoration are complete. The boundary expansion will provide HBGS space for laydown, storage, contractor parking during maintenance/outages, and potential future use. The boundary expansion will also enable HBGS to utilize HBPP infrastructure developed for decommissioning. PG&E also proposes to utilize the temporary construction access road (Alpha Road), which was originally built for HBGS construction and later used for HBPP decommissioning, as the permanent main access road to the HBGS plant. The existing HBPP main access road (Bravo Road), which originally was to be the main HBGS access road, will provide secondary access. A worker parking area within the HBGS existing boundary will also be established. Lastly, HBGS will assume responsibility for managing the stormwater management system that will be installed as part of site restoration and will be located within the HBGS expanded site boundary.

Although the proposed site boundary and project modification will not take effect until HBPP decommissioning and restoration are complete, this modification is being submitted now so that it can be considered while the CCC evaluates the HBPP FSR Plan. A CDP for that plan was submitted to the CCC on April 30, 2015.

2.1.1 Modifications Under California Energy Commission Jurisdiction

Once HBPP decommissioning and restoration have been completed and the areas have been determined by the NRC and DTSC as being free of any radiological or chemical contamination, respectively, the project modifications under the CEC's jurisdiction included in this Petition will be enacted. These modifications are as follows:

- Expansion of the existing HBGS site boundary to include the Waste Management Building, the area formerly occupied by HBPP Units 1-3 (HBPP core area), the three new stormwater detention basins, and Alpha Road
- Modifications to the Waste Management Building for use as a HBGS warehouse
- Designation of Alpha Road as the HBGS primary access road and Bravo Road as the secondary access road
- Establishment of an HBGS worker parking area within the existing HBGS boundary, where Alpha Road enters the plant
- Management of the stormwater management system developed as part of HBPP site restoration

2.1.1.1 HBGS Proposed New Construction Activities

Of the modifications listed above, only two are construction activities. The first construction activity consists of the modifications to the Waste Management Building to enable it to be used as an HBGS warehouse. These modifications include the addition of a fourth wall, installation of a fire suppression system and restroom facilities, and the construction of potable water, firewater, and sanitary sewer pipelines to serve the building. The second construction activity consists of demarcating (painting) the worker parking spaces within an existing graveled area on the HBGS site, to create a new on-site worker parking area within the existing HBGS boundary.

2.1.1.2 HBGS Proposed Modified Operation Activities

The remainder of the modifications identified above (expanded site boundary, use of new warehouse building, use of Alpha Road for primary plant access, workers parking within the newly established parking area on the existing HBGS site, and HBGS management of the site stormwater management system) are activities that affect the operations of the HBGS plant.

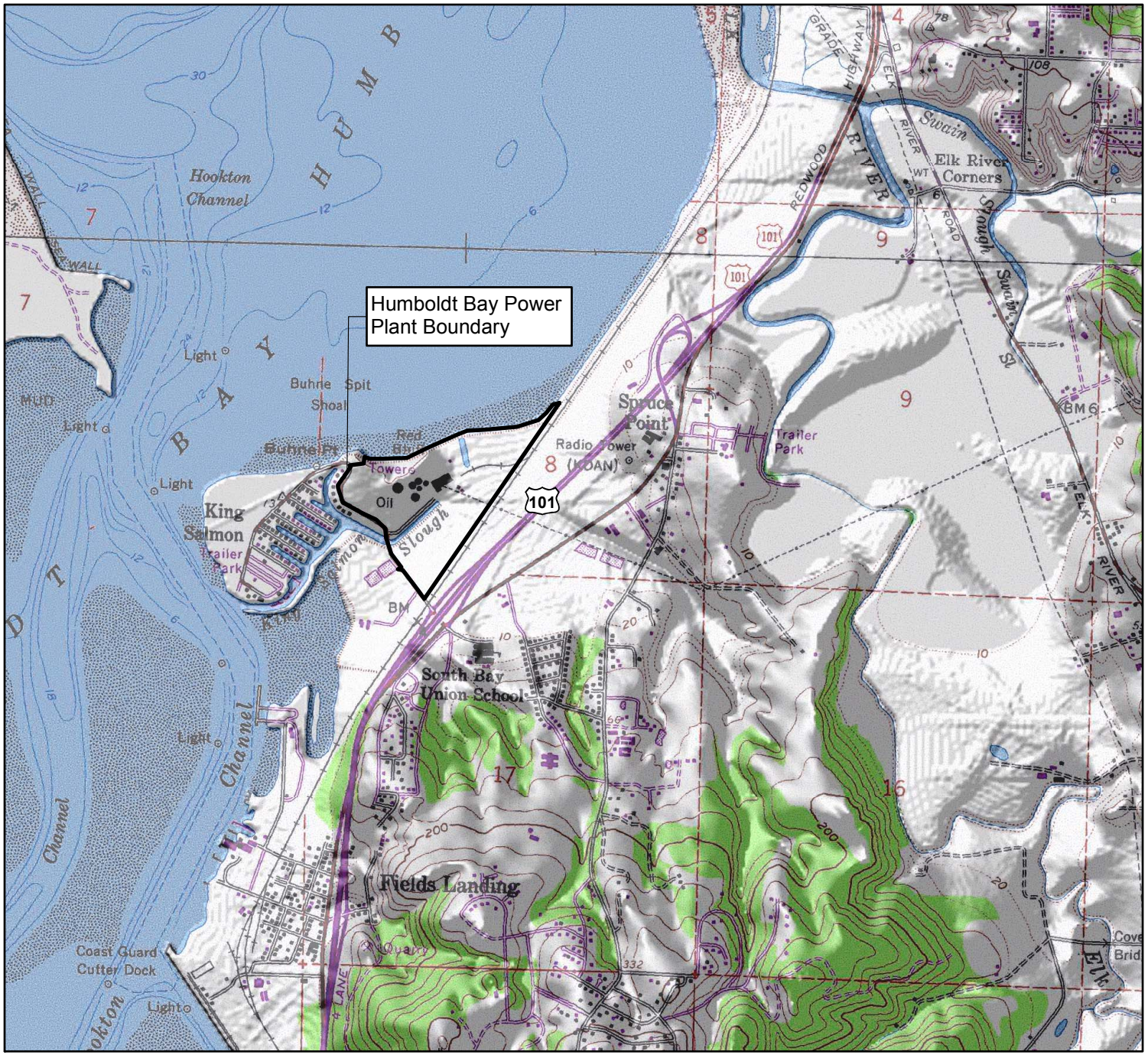
Both the construction and operations-related modifications are discussed in Section 2.1.3. Figure 2-2 depicts the expanded HBGS site boundary and project modification features included in this Petition.

2.1.2 Restoration Activities under Coastal Commission Jurisdiction

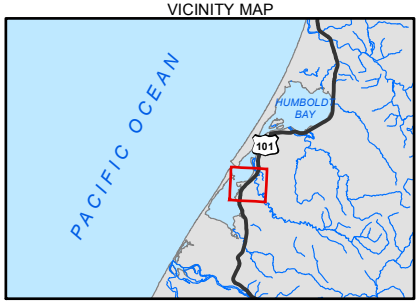
Following is a list of restoration development activities that require approval by the CCC. These activities would be completed prior to this Petition being enacted. The areas to be restored and the specific restoration activities are described in more detail in the FSR Plan included in Appendix A.

Site restoration activities subject to approval by the CCC include the following:

- Restoring the Trailer City laydown area by creating 3.61 acres of both CCC and U.S. Army Corps of Engineers jurisdictional wetlands in an area to be referred to as the Shoreline Wetlands Mitigation Area
- Creating a stormwater detention basin adjacent to the Shoreline Wetlands Mitigation Area
- Expanding Bayview Heights to incorporate the area within the Discharge Canal
- Restoring Bayview Heights to pre-project conditions, retaining existing roadways built for construction of the ISFSI for access to the ISFSI, and constructing a truck turnaround for maintenance vehicles accessing the ISFSI



VICINITY MAP



LEGEND

PROPERTY BOUNDARY

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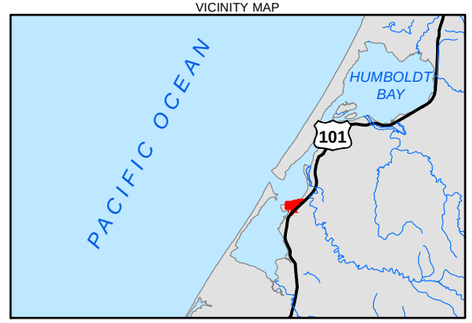
FIGURE 2-1
Location Map
Humboldt Bay Generating Station
Eureka, California

VICINITY MAP



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- 60 kV Substation (60 KV)
- Independent Spent Fuel Storage Installation (ISFSI).
- Humboldt Bay Generating Station (HBGS)

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0 300 600

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Image Source: PG&E HBPP June 5, 2014

FIGURE 2-2
HBGS Expanded Site Boundary and Project Modification Features
Humboldt Bay Generating Station
Eureka, California

- Covering the HBPP Core Area (former location of Units 1, 2, and 3) in aggregate for laydown, storage, contractor parking during maintenance/outages, and potential future use; also, within a segment of the HBPP Core Area, a road will be built to enable vehicles to travel to the Waste Management Building (proposed HBGS warehouse)
- Retaining the Waste Management Building for use by HBGS as a warehouse
- Retaining the Count Room for use by ISFSI personnel once decommissioning and restoration are complete and maintaining an area adjacent to the Count Room for ISFSI personnel parking
- Retaining Portal Road to provide access to the ISFSI from the Count Room area
- Constructing an ISFSI entrance road from the Assembly Building parking lot off Bravo Road to the Count Room
- Creating two stormwater basins, one adjacent to the Count Room (ISFSI stormwater detention basin) and the other below the Waste Management Building (Frog Pond stormwater detention basin)
- Making modifications to Alpha Road to make it a permanent access road; the modifications include widening Alpha Road at its entrance to King Salmon Road; upgrading a section of the road to accommodate heavy loads; paving Alpha Road; and restoring two areas along the road which were used for decommissioning parking
- Installing fences and pedestrian and vehicle gates around the project area

Figure 2-3 depicts the FSR Plan.

2.1.3 Description of Project Modifications Under this Petition

The proposed modification to expand the HBGS site boundary will increase the size of the 5.4-acre HBGS site by 6.3 acres, for a total of 11.7 acres. The area within the boundary expansion will enable HBGS to operate more efficiently by providing it with adequate warehouse space, an area for maintenance/outage laydown and contractor parking, storage, and potential future use, primary and secondary access routes, and on-site parking within the existing HBGS boundary. As part of the boundary expansion, HBGS will also assume the responsibility for managing the new stormwater system that will be constructed as part of site restoration. Figure 2-2 depicts the project features within the expanded site boundary that are the subject of this Petition. Each of the project features are also discussed below.

2.1.3.1 Waste Management Building

The Waste Management Facility is a 12,500-square-foot slab-on-grade metal building, which is used for sorting, sampling, monitoring, loading, weighing, and other processing of waste materials prior to shipping them to an appropriate disposal site. The building will continue to be used during site restoration for radiological and chemical soil remediation activities pursuant to NRC and DTSC requirements. It is a three-walled building and is 27 feet tall. The building is located at the site of a former liquid fuel storage tank, and was permitted by the CCC as part of CDP E-09-010. The structure was designed by PG&E and permitted by the Humboldt County Building Department.

Because of space constraints on the HBGS site, there is currently no warehouse. A workshop, which included warehouse space, was included as part of the licensed project. However, it was not built because its location prevented the transport of the ISFSI casks both into and eventually out of the PG&E property[4]. The workshop/warehouse was to be located adjacent to the HBGS plant road and limited the width of the road in that area. To address the need for warehouse space, HBGS now rents warehouse space off-site and several miles away in Arcata. The decommissioning and restoration of the HBPP provides HBGS with the

[4] The road through the HBGS serves as the heavy haul route for the ISFSI casks, as it connects with Alpha Road.

opportunity to convert the Waste Management Building for use as a warehouse once those activities are complete.

The Waste Management Building will require modifications for use as a warehouse. These modifications will be conducted by HBGS and will be implemented after the site boundary expansion is actuated. Specifically, the building will be enclosed by constructing a fourth wall and retrofitting the interior to meet HBGS's needs. In addition, a fire suppression system and restroom facilities will be installed. To serve the building, potable and fire water pipelines (both approximately 75 feet long) and an approximately 140-foot-long sanitary sewer line will be constructed. Figure 2-4 depicts the location of these pipelines. The specific diameter of the lines will be determined during detailed design, but will likely range from 4 to 6 inches. The pipelines will be buried at a maximum depth of approximately 4 feet. Modifications to the Waste Management Building will be done in compliance with Condition GEN-1.

2.1.3.2 HBPP Core Area

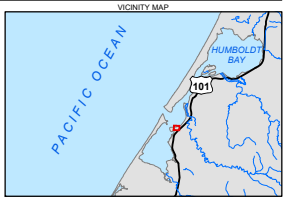
The area formerly occupied by HBPP Units 1, 2, and 3 (referred to as the HBPP Core Area) will be resurfaced for HBGS uses including open storage, parking, and maintenance staging. Typically when engine maintenance or outage activities are conducted at a power plant, there is open space available to perform the work. Because HBGS has limited space, engine components are stacked inside the engine hall causing congestion and adding to the difficulty of performing maintenance. This increases the time the equipment is out of operation and the cost of the maintenance/outage. PG&E proposes to use the HBPP Core Area as an area to be used by contractors to park and work on plant equipment in need of repair or maintenance. This area will also be available for equipment storage and potential future expansion.

The HBPP Core Area will be covered in aggregate, except for a paved roadway that will be added to provide access to the Waste Management Building. Fencing will be installed around the expanded HBGS site boundary. Pedestrian and vehicle gates will also be installed. These features will be added as part of HBPP site restoration.

Lastly, access to the ISFSI and ISFSI support facilities will be obtained through the HBGS expanded site boundary. Specifically as part of HBPP site restoration, a new road will be constructed from the Assembly Building parking lot (off Bravo Road) to the Count Room, which will be converted to ISFSI office space as part of restoration. Access to the ISFSI will be from the Count Room area. Vehicle gates with security access systems will control access to Bravo Road and into the Count Room area from the new ISFSI entrance road.

In addition, three buildings within the expanded HBGS site boundary will remain after decommissioning and restoration, and these buildings will be used by ISFSI personnel for office space (Figure 2-2). The buildings will be secured with key card access only available to ISFSI personnel. A pedestrian gate will be installed to provide ISFSI personnel access to the buildings.

VICINITY MAP



LEGEND

- Flow Control Structure
- Permitted Mitigation Areas
- Future Cask Removal Turnaround
- Gravel / Asphalt
- Roads
- Coastal Bluff Scrub
- Coastal Prairie
- Managed native grasses
- North Coast Riparian Scrub
- Stormwater Basin
- Swale
- Wetland - alkali bulrush
- Wetland - rushes

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Image Source: PG&E HBPP June 5, 2014

FIGURE 2-3
HBPP Final Site Restoration Plan
Humboldt Bay Generating Station
Eureka, California

V:\HUMBOLDTBAY\MAPFILES\HBGS_LICENSE_AMEND\FIG2-3_RESTORATION_PLAN.MXD MSCHROCK 5/6/2015 1:24:49 AM

CH2MHILL

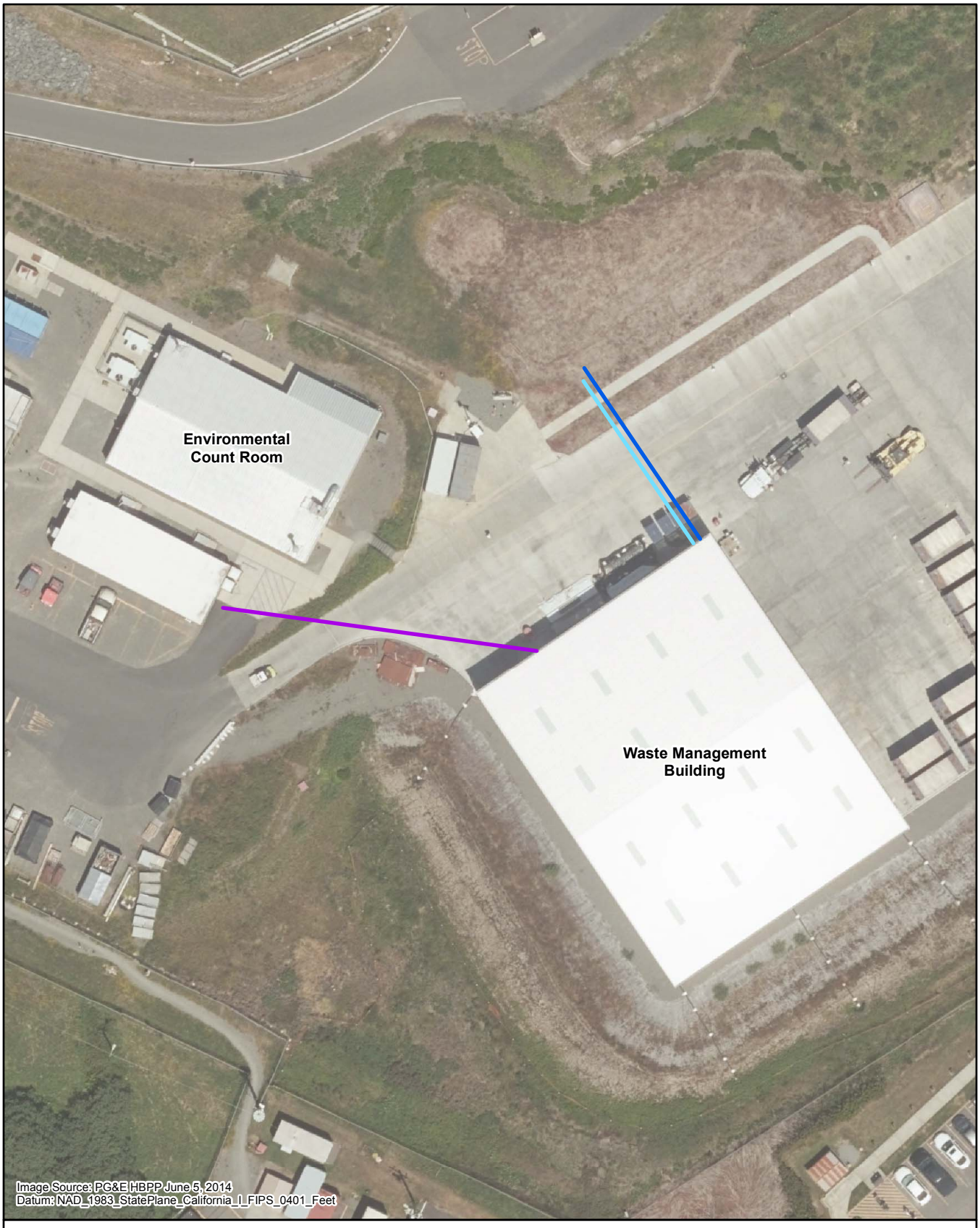

FIGURE 2-4
Linear Appurtenances for the Waste Management Building to Warehouse Conversion
Humboldt Bay Generating Station
Eureka, California

V:\HUMBOLDTBAY\MAPFILES\HBGS_LICENSE_AMEND\FIG2-4_HBGS_WAREHOUSE_UTILITY_LINEARS.MXD MSCHROCK 5/5/2015 1:15:40 AM

2.1.3.3 Alpha Road

Alpha Road was originally constructed as a temporary access road for HBGS construction. It is now used by HBPP for decommissioning. The road was to be removed and the alignment restored once HBPP decommissioning is complete[5]. However, as part of the HBPP restoration project, Alpha Road will be made permanent to accommodate heavy haul loads such as the removal of the ISFSI casks once a federal repository for high-level nuclear fuels is available. The road will also be used for heavy loads associated with HBGS and the PG&E 60-kV substation. These loads could include replacement of reciprocating engines and transformers. Alpha Road is necessary as a permanent heavy haul road because the turnoff to Alpha Road from King Salmon Avenue comes before the bridge over Buhne Slough when traveling from Highway 101. This bridge is not rated to accept heavy loads. The turnoff to Bravo Road comes after the bridge; therefore, Bravo Road is not a suitable route for heavy haul loads. The HBPP site restoration modifications to be made to Alpha Road include upgrading in certain areas to accommodate heavy loads, widening its entrance at King Salmon Avenue, and paving.

Once the improvements to Alpha Road are made and it is designated as a permanent road, HBGS proposes to use Alpha Road as the primary access road to the plant. As licensed, HBGS was to use Bravo Road (the main HBPP access road) as its primary access road. There was no secondary HBGS access. However, Bravo Road has not been available for HBGS access because of HBPP decommissioning activities. With Alpha Road as the primary access road to HBGS, Bravo Road will provide secondary, emergency access. Having two plant access routes is an important safety measure because it will ensure HBGS plant access to fire personal and emergency vehicles should one of the access roads be blocked.

2.1.3.4 HBGS Parking

In a compliance filing pursuant to Condition of Certification TRANS-3, PG&E stated that HBGS operations personnel would park in the Assembly Building parking lot adjacent to Bravo Road. As part of this Petition, PG&E proposes to establish a parking area for HBGS personnel in an existing graveled area where Alpha Road enters the power plant (see Figure 2-2). This parking area will enable HBGS personnel to park closer to the power plant. The size and number of spaces to be added by HBGS will be in compliance with Humboldt County Zoning Regulations Section 313-109.1 Off-Street Parking.

2.1.3.5 Stormwater Management System

As part of HBPP restoration, a new stormwater management system will be constructed. Excavation and grading plans associated with the HBPP stormwater management system will reconfigure site drainage consistent with LID principles. As part of decommissioning and restoration, portions of the existing stormwater conveyance system will be retained, while other sections will be entirely removed, resulting in significant alteration to drainage patterns and outfalls. The LID design techniques protect and enhance surrounding habitat resources. This is done by minimizing impervious surfaces and developing a network of bio-swales or vegetated swales, as well as bio-detention basins located throughout the project area designed to retain and treat stormwater flows. In addition, an existing basin, the Frog Pond, will be recontoured and connected functionally with the new ISFSI stormwater basin. Finally, several “rain gardens” (small bio-swales) will be created at strategic places around the property.

Treatment of runoff will occur in the swales and basins through a combination of sedimentation, adsorption, and other natural processes that help to remediate constituents of concern such as petroleum hydrocarbons

[5] During HBGS construction, several temporary facilities (now referred to as Alpha Road, Trailer City laydown area, the pedestrian path, and pedestrian bridge) were developed for use during HBGS construction. The HBGS VIS-2 Surface Restoration Plan submitted in July 2010 and approved by the CEC in August 2010 stated that temporary facilities developed for HBGS construction will be needed for HBPP decommissioning. The plan described the use of these areas for HBPP decommissioning and identified the CDPs under which the CCC permitted their use. The Surface Restoration Plan also addressed the CCC requirement for submitting a CDP application to address the restoration of these areas. Specifically, under CDP E-09-010 (and CDP E-05-007 for a portion of the laydown area now referred to as Trailer City), the CCC assumed jurisdiction of these areas and required that they be restored post-decommissioning.

and metals to levels permissible under the General Industrial Permit for stormwater. These processes are enhanced with the help of a community of native plants and soil planted and maintained within the swales and basins. The system will be designed so that it will retain 100 percent of the volume of runoff from the 85th percentile 24-hour storm for an average of 48 hours.

Given the proposed HBGS site boundary expansion, HBGS will assume responsibility for management of the stormwater system. Once the boundary change goes into effect when HBPP site restoration is complete, a Notice of Termination for the HBPP NPDES Construction General Permit will be submitted to the State Water Resources Control Board, and a Change of Information form for the HBGS General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity Industrial will be filed.

2.2 Necessity of Proposed Modification

Sections 1769 (a)(1)(B) and 1769(a)(1)(C) of the CEC Siting Regulations require a discussion of the necessity for the proposed modification and whether the modification is based on information that was known by the petitioner during the certification proceeding.

Plans for modifying the boundary of HBGS were not envisioned during the certification proceeding. The focus at that time was on developing and constructing the HBGS to enable the 50-year-old HBPP to be shut down. Specific plans for HBPP decommissioning and site restoration had not yet been developed.

The 5.4-acre-HBGS site is constrained. The amount of developable area available at the time the plant was licensed was limited because of the existing HBPP and surrounding wetlands. HBPP decommissioning and restoration provides HBGS with the opportunity to expand its boundary and conduct ongoing operational activities such as equipment storage and overhauls and maintenance within the new plant boundary. This will enable the HBGS to function more efficiently. It also enables HBGS to take advantage of using existing infrastructure (the Waste Management Building) utilized by HBPP decommissioning. The use of Alpha Road for primary access will enable Bravo Road to be used by HBGS as secondary emergency access, enhancing plant safety.

SECTION 3

Environmental Analysis of the Project Modification

PG&E has reviewed the proposed modification to determine whether the modification will result in environmental impacts that were not originally analyzed by the CEC when it approved the project in September 2008. The only new construction activities associated with the proposed modifications are as follows:

- Demarcating (painting) parking spaces within an existing graveled area on the HBGS site
- Improvements to the existing HBPP Waste Management Building to convert it to use as an HBGS warehouse

Demarcating the parking spaces will not result in any environmental impacts. The parking area is within a developed area of the existing HBGS site, and no earthmoving is required. In addition, there will be no air quality impacts because state/local compliant coatings will be used.

The disciplines that could potentially be affected by the HBPP Waste Management Building improvements to convert it to use as an HBGS warehouse are Air Quality, Cultural Resources, Geology and Paleontology, Hazardous Materials, Traffic and Transportation, Visual Resources, and Water Resources. Each of these is discussed in more detail below. Because these activities will occur within developed areas with the expanded site boundary, there will be no impacts to Biological Resources.

The proposed modification discussed in this petition will not alter the operational impacts that were used as the basis to license the project during the original proceeding. Therefore, operational impacts are expected to be equal to those analyzed in the Final Decision and are not addressed in this petition. In addition, because of the short duration of construction and the minimal area of disturbance, no cumulative impacts are expected. Lastly, the proposed project is expected to comply with applicable laws, ordinances, regulations, and standards.

3.1 Air Quality

The modifications to the Waste Management Building to convert it to an HBGS warehouse consist of adding a fourth wall, adding a fire suppression system and restroom facilities to the building, and installing potable water, firewater, and sanitary sewer pipelines. These activities will take a maximum of approximately 20 days. It is also anticipated that a maximum of 81 construction workers will be needed to install the modifications.

A total of 16 delivery trucks will deliver the materials for the modifications throughout the construction period. In addition, dump trucks and cement trucks will be utilized for 2 days of construction. Table 3.1-1 presents information regarding the expected construction equipment and worker vehicles.

TABLE 3.1-1
Waste Management Building Conversion to HBGS Warehouse Construction Equipment
Humboldt Bay Generating Station Site Boundary Expansion and Project Modification

Equipment / Vehicle List	Equipment / Vehicle Type	Quantity/Days
Dump Truck	Heavy-duty Diesel	10/2
Cement Truck	Heavy-duty Diesel	12/2
Backhoe	Construction Equipment	2/20
Crane	Construction Equipment	1/ 2

TABLE 3.1-1
Waste Management Building Conversion to HBGS Warehouse Construction Equipment
Humboldt Bay Generating Station Site Boundary Expansion and Project Modification

Delivery Trucks	Heavy-duty Diesel	16/NA
Air Compressor	Construction Equipment	2/20
Manlifts	Construction Equipment	2/20
Construction Worker Commute	Light-duty Auto/Truck	81/20

The potential air quality impacts associated with the proposed project would be due to construction air emissions in the form of tailpipe exhaust and fugitive dust from material movement. Emissions of reactive organic gases (ROG), carbon monoxide (CO), oxides of nitrogen (NO_x), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), and particulate matter less than 2.5 microns in size ($PM_{2.5}$) were estimated for on-site construction equipment and off-site dump trucks, cement trucks, worker commute vehicles, and delivery haul trucks. Construction equipment emissions were estimated using emission factors from Appendix D of the *CalEEMod User's Guide* (ENVIRON, 2013) for the year 2015. Emissions for dump trucks, cement trucks, worker commute vehicles, and delivery haul trucks were estimated using emission factors from EMFAC2014 for Humboldt County, California for the year 2015. It was assumed that all trips would originate from near Eureka, California, with an average round-trip distance of 15 miles and an average vehicle speed of 35 miles per hour. Fugitive dust emissions for material movement associated with the installation of 215 feet of underground piping were estimated using methodology found in Appendix A of the *CalEEMod User's Guide* (ENVIRON, 2013).[6] It was conservatively assumed that the piping trench would be dug to a maximum depth of 4 feet, with a width up to approximately 2 feet, resulting in approximately 65 cubic yards of cut and fill. Fugitive dust emissions from off-site vehicle travel on paved roads were estimated using methodology found in Section 13.2.1 of *AP-42* (U.S. Environmental Protection Agency [EPA], 2011). The estimated maximum daily and project total criteria pollutant emissions are presented in Table 3.1-2, which shows that the expected construction air emissions from the project are negligible.

TABLE 3.1-2
HBGS Construction Criteria Pollutant Air Emissions
Humboldt Bay Generating Station Site Boundary Expansion and Project Modification

	Criteria Pollutant Emissions					
Construction Year 2015	**ROG**	**CO**	**NO_x**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily Emissions (lb/day)	3.28	25.7	32.2	0.046	3.01	11.5
Project Emissions (tons/project)	0.023	0.218	0.187	2.91E-04	0.023	0.013

Project construction impacts from greenhouse gas (GHG) emissions were assessed by estimating the emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) from the project. Emissions of CO_2 from construction equipment were estimated using emission factors from Appendix D of the *CalEEMod User's Guide* (ENVIRON, 2013) for the year 2015. Emissions of CO_2 from dump trucks, cement trucks, worker commute vehicles, and delivery haul trucks were estimated using emission factors from EMFAC2014 for Humboldt County, California, for the year 2015. Emissions of CH_4 and N_2O from construction equipment, dump trucks, cement trucks, worker commute vehicles, and delivery haul trucks were derived from CO_2 emissions estimates using conversion factors from Table 13.9 of The Climate Registry's (TCR's) *Default*

[6] The potable water and fire water pipelines will both be approximately 75 feet and will be located in the same trench. The sanitary sewer pipeline will be approximately 140 feet.

Emissions Factors (TCR, 2015). The estimated maximum daily and project total GHG emissions are presented in Table 3.1-3.

Appendix B presents the detailed calculations for the construction emission estimates.

TABLE 3.1-3
HBGS Construction Greenhouse Gas Air Emissions
Humboldt Bay Generating Station Site Boundary Expansion and Project Modification

Construction Year 2015	CO_2	N_2O	CH_4	CO_2e
Project Emissions (metric tons/project)	26.4	0.001	9.33E-04	26.8

Based on the limited duration and nature of the Waste Management Building modifications and the estimated criteria and GHG emissions, air quality impacts are expected to be insignificant, and these impacts will not alter the basis of the Commission's Decision for the project.

The Waste Management Building modifications are not expected to result in cumulative air quality impacts nor alter the basis of the Commission Decision. In addition, the proposed project is expected to comply with applicable laws, ordinances, regulations, and standards.

3.2 Cultural Resources

The modifications to the Waste Management Building to convert it to use as an HBGS warehouse are not likely to affect cultural resources. This is because ground disturbance associated with the installation of the potable water and firewater pipelines and the majority of the sewer pipeline serving the warehouse will primarily occur in areas that were previously disturbed during construction of the Waste Management Building and the Count Room (where the sanitary sewer line will interconnect). The Waste Management Building is located in the former location of a liquid fuel oil tank that served the HBPP. The building and concrete area surrounding it are on 7 to 10 feet of fill. Given that the maximum trench depth for the pipelines is 4 feet, it is not anticipated that cultural resources will be affected along the route of the potable water and firewater pipelines. The sanitary sewer pipeline will interconnect to the existing sewer line that serves the Count Room. A portion of the excavation for the new sanitary sewer pipeline will occur within native soils. Given this, a cultural monitor will be on-site during construction of the sewer pipeline.

3.3 Geology and Paleontology

The Waste Management Facility is a 12,500-square-foot slab-on-grade metal building that currently serves as a packaging and storage area for demolition waste streams. The structure was designed by PG&E and permitted by the Humboldt County Building Department in August 2012 to meet Occupancy Class S-2/F-2 for storage and packaging of low hazard materials in accordance with the 2010 California Building Standards Code (CBSC). The design was supported by a soils report dated June 13, 2012, prepared by a California licensed professional engineer.

The Waste Management Facility was sited, designed, and built in consideration of the geologic hazards of the site as postulated by the building code, local jurisdictional requirements, and project-specific soils reports prepared by licensed professional engineers. The building was located on a previously developed area of the HBPP footprint.

The Waste Management Building will be modified to convert it for use as a HBGS warehouse. The modifications will include adding a fourth wall, a fire suppression system, and restrooms to the building. Potable water, firewater, and sanitary sewer pipelines will also be installed. The modifications will be designed and constructed in compliance with Condition of Certification GEN-1.

The modifications to the Waste Management Building are not likely to affect paleontological resources. This is because ground disturbance associated with the installation of the potable water, firewater pipelines, and the majority of the sewer pipeline serving the warehouse will occur in areas that were previously disturbed during construction of the Waste Management Building. The Waste Management Building is located in the former location of a liquid fuel oil tank that served the Humboldt Bay Power Plant. The building and concrete area surrounding it are on 7 to 10 feet of fill. Given that the maximum trench depth for the pipelines is 4 feet, it is not anticipated that paleontologic resources will be affected during construction of the potable water and fire water pipelines. The sanitary sewer pipeline will interconnect to the existing sanitary sewer line that serves the Count Room. A portion of the excavation for the new sanitary sewer pipeline will occur within native soils. Given this, a paleontological monitor will be on-site during construction of the sewer pipeline.

3.4 Hazardous Materials

Once the Waste Management Building is converted to a warehouse, it will be used to store spare parts for HBGS. It will not be used to store hazardous materials.

However, as part of HBPP site restoration, new site fencing and pedestrian and vehicle gates will be installed around the expanded HBGS site boundary, including the new warehouse building. The HBGS expanded site boundary will require modifications to the Operations Security Plan (developed in compliance with Condition of Certification HAZ-8) to incorporate the new fencing and gates around the expanded boundary. The modified Operations Security Plan will be available for review and approval by the CEC Compliance Project Manager (CPM) 30 days prior to the expanded site boundary going into effect.

3.5 Traffic and Transportation

Access to the Waste Management Building will be from King Salmon Avenue via US Highway 101. King Salmon Avenue is a county-maintained road between US 101 and the community of King Salmon. There are two roads to the PG&E property from Kings Salmon Avenue: Alpha Road and Bravo Road. Alpha Road was originally built for construction access to the HBGS plant site and later used for HBPP decommissioning. As part of site restoration, PG&E proposes to make Alpha Road a permanent heavy haul road. It will also serve as the primary access road to the HBGS. Bravo Road will provide secondary access. King Salmon Avenue is lightly traveled by passenger cars and trucks. Heavy trucks have primarily been limited to those associated with HBPP decommissioning.

According to the Humboldt County Public Works Department, King Salmon Avenue carried approximately 2,355 vehicles per day in June 1973. Only total daily traffic counts were measured during this County survey; therefore, truck traffic and peak-hour volume data were not available for King Salmon Avenue (CH2M HILL [CH2M], 2006). The County did additional surveys in July 2009 over 5 days. During this survey period, average daily traffic ranged from 1,339 to 1,782 vehicles. This traffic data includes traffic associated with HBGS construction, which commenced in October 2008.

Traffic count data was also assessed for three locations on King Salmon Avenue in March 2009 by LACO Associates (LACO Associates, 2009) for the permitting of HBPP decommissioning. This traffic data also includes traffic associated with HBGS construction. Table 3.5-1 provides the summary of intersection level of service (LOS) for existing morning and evening traffic conditions.

Pedestrian and bicycle traffic was also observed during the traffic counts and was reported to be light, with fewer than five per hour for each intersection (LACO Associates, 2009).

TABLE 3.5-1
Levels of Service, Project Area Intersections
Humboldt Bay Generating Station Site Boundary Expansion and Project Modification

Site	Northbound		Southbound		Eastbound		Westbound	
	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS
Study Intersection Morning								
Site No. 1, King Salmon and West Ramps			9.1	A			7.5	A
Site No. 2, King Salmon and East Ramps	10.5	B	9.6	A	7.5	A		
Site No. 3, King Salmon and West Entrance			7.3	A			9.2	A
Study Intersection Evening								
Site No. 1, King Salmon and West Ramps			9.5	A			7.6	A
Site No. 2, King Salmon and East Ramps	12.4	B	9	A	7.5	A		
Site No. 3, King Salmon and West Entrance			7.3	A			9.0	A

Note:
Delay is in average number of seconds per vehicle.
Source: LACO Associates, 2009.

Staffing levels on the overall site (HBPP and HBGS), both for HBPP decommissioning and HBGS construction, commissioning, and operation workers, peaked in late 2009 through 2010 when an estimated 500 staff were on-site. During this time, there were no reported complaints of traffic backing up onto King Salmon Avenue.

The modification to the Waste Management Building will occur after HBPP decommissioning and restoration are complete. The only traffic associated with the PG&E property at the time of the modification will be for ISFSI and HBGS operations personnel. The total number of day-shift workers for both facilities is 34.

The modifications to the Waste Management Building for use as a HBGS warehouse (the addition of a fourth wall, fire suppression system, restroom facilities, and the installation of potable water, firewater, and sanitary sewer pipelines) are projected to take approximately 20 days. Construction will occur Monday through Friday for 10 hours per day from approximately 7:00 a.m. to 5:00 p.m. The maximum number of construction workers commuting to the site daily is estimated to be 81 workers. The workers will park in the Assembly Building parking lot, the two parking areas along Bravo Road (all of which will remain post-HBPP site restoration), and the HBPP Core Area. Delivery trucks and heavy vehicles delivering or hauling away materials during the construction period will generate an additional 104 trips for approximately 7 days during the construction period.

Based on a worst-case scenario, it is assumed that each worker will drive a separate vehicle to the project site, making two trips per day (one round trip). Construction workers will generate a maximum of 81 round trips during the construction period. The delivery of construction materials and the hauling of materials to and from the project site (estimated to be 104 trips) will occur throughout the day for approximately 7 days.

Based on the LACO analysis conducted in 2009, which included HBGS construction traffic that no longer exists, the LOS should not be affected during the short construction period. In addition, the number of construction workers and deliveries, coupled with the number of ISFSI and HBGS operations personnel, is far less than the HBPP decommissioning and HBGS commissioning, construction, and operations staffing peak of 500 that was experienced in late 2009/2010. Because daily traffic estimates will be less than those previously experienced at the project site without traffic issues, potential impacts will not significantly alter the current LOS to King Salmon Avenue. Given this, no traffic impacts are anticipated with the modifications to the Waste Management Building to make it suitable for use as an HBGS warehouse.

3.6 Visual Resources

The Waste Management Building was constructed as a three-sided, open storage structure in the former location of a liquid fuel oil tank. It has been used for processing contaminated soil and other wastes associated with the decommissioning project. A fourth wall will be added to the northeast-facing side of the building so it can be enclosed and serve as a warehouse for the HBGS. The structure is needed for HBGS operation because a warehouse was never built to serve HBGS due to the constrained building site area available while Units 1, 2, and 3 were still in place. This will allow HBGS to come up to the standard for available warehouse space for a power plant of its size.

The Waste Management Building is a large building measuring 125 by 100 by 27 feet. The addition of a fourth wall will not change the view of the building. Appendix C includes photos taken in January 2015 from the HBGS Key Observation Points established for the licensing of the plant, from which the Waste Management Building is barely visible. It is not visible from the other Key Observation Points. In the photos, the scale, form, and neutral color of the building are similar to the HBGS and do not attract viewer attention. It is also not apparent from the photos that the building is only three-sided. The overall result of the decommissioning program and HBPP site restoration will be the removal of visual clutter, resulting in an improvement to local view sheds. The addition of the fourth wall to the Waste Management Building will not affect the improved view, nor will it cause a significant adverse visual impact.

3.7 Water Resources

The HBGS is estimated to use approximately 30 gallons per day (0.03 acre-foot per year) of potable water for domestic uses at the Waste Management Building once it is converted to a warehouse. Water for the HBGS is provided by the Humboldt Community Services District (HCSD). There is no Condition of Certification that specifies the amount of potable water the HBGS can use. However, Condition Soil & Water-5 requires that PG&E submit an annual Water Use Summary, which specifies the amount of water used by the facility each year. For the October 2013 to September 2014 reporting period, HBGS used 0.232 acre-foot of potable water for domestic use. The addition of 0.03 acre-foot per year for the domestic use of the Waste Management Building once it is converted to a warehouse is a negligible increase. Given this, the domestic water use for the Waste Management Building will not result in an impact to the water supply provided by the HCSD.

SECTION 4

Proposed Modifications to the Conditions of Certification

Consistent with the requirements of the CEC Siting Regulations Section 1769 (a)(1)(A), this section of the Petition addresses any proposed modifications to the project's Conditions of Certification. The expanded HBGS site boundary, modifications to the Waste Management Building to convert it to an HBGS warehouse, use of Alpha Road as the primary access road, use of Bravo Road for secondary access, and management of the stormwater management system will require a new Condition of Certification to require that documentation be provided to the CEC to demonstrate that radiological and chemical soil remediation and restoration activities are complete, thus enabling modifications included in this Petition to be enacted. In addition, PG&E proposes modifications to existing HBGS Condition Soil & Water-3 to reflect the necessary changes to the HBGS General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity and SWPPP, to include the new stormwater management system and expanded site boundary.

The proposed Condition Waste-8 and an amended Condition Soil & Water-3 are included below:

WASTE-8 The expanded HBGS site boundary shall take effect once the following activities within the expanded site boundary have been completed:

- Final Site Surveys demonstrating that the Nuclear Regulatory Commission established Derived Concentration Guideline Limits for soils and structures have been met;
- Chemical contamination remediation to the Department of Toxic Substances Control established soil reuse screening levels have been met; and
- Restoration of the HBPP site, as approved by the California Coastal Commission in Coastal Development Permit 9-15-0531.

Verification: At least 30 days prior to the expanded site boundary taking effect and the initiation of modifications to the Waste Management Building, the project owner shall provide documentation from the Nuclear Regulatory Commission, the Department of Toxic Substances Control, and the California Coastal Commission to the CPM for review and approval demonstrating that the above activities have been completed.

SOIL & WATER-3: The project owner shall comply with the requirements of the General NPDES Permit for Discharges of Stormwater Associated with Industrial Activity. The project owner shall develop and implement a SWPPP for the operation of the entire expanded HBGS~~RP~~ site (Operational SWPPP).

Verification: At least 60 days prior to the expanded site boundary taking effect ~~commercial operation~~, the project owner shall submit copies to the CPM of the amended Operational SWPPP for the expanded ~~entire~~ HBGS~~RP~~ site for review and approval. This information shall include a copy of the Change of Information form ~~Notice of Intent~~. Following the commercial operation date, the project owner shall notify the CPM of any reported non-compliance with the SWPPP, any associated corrective measures, and the results of implementing those measures.

SECTION 5

Potential Effects on the Public and Property Owners

The CEC Siting Regulations Section 1769(a)(1)(I) requires the project owner to address any potential effects that the proposed project modification may have on nearby property owners, the public, and parties to the proceeding.

The proposed modification to expand the HBGS site boundary within the 143-acre PG&E parcel and convert the existing Waste Management Building into a warehouse will have no impact on nearby property owners, the public, and parties to the proceeding. Construction efforts associated with the Waste Management Building will be within the PG&E property boundary.

SECTION 6

List of Property Owners

CEC Siting Regulations Section 1769(a)(1)(H) requires that a list of property owners potentially affected by the modification be provided. Although the proposed modification to expand the HBGS site boundary within the 143-acre PG&E parcel and convert the existing Waste Management Building into a warehouse will have no impact on nearby property owners, included in Appendix D are the names and addresses of the property owners within 1,000 feet of the HBGS site.

SECTION 7

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Appendix A
Humboldt Bay Power Plant
Final Site Restoration Plan

Coastal Resources Assessment

Humboldt Bay Power Plant

Final Site Restoration Plan Implementation

Submitted by

Pacific Gas and Electric Company®

Prepared for

California Coastal Commission

With Technical Assistance by

ch2m

April 2015

PO06206001SAC

Coastal Development Permit Application

Project Description and Coastal Resource Assessment

Humboldt Bay Power Plant
Final Site Restoration Plan Implementation

Prepared for

Pacific Gas and Electric Company™

April 2015

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Acronyms and Abbreviations

°F	degree(s) Fahrenheit
µg/m^3	microgram(s) per cubic meter
ACM	asbestos-containing materials
ACCM	asbestos containing construction materials
AFC	Application for Certification
ARB	(California) Air Resources Board
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CCA	California Coastal Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	Center of the California Historical Resources Information System
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRA	Coastal Resource Assessment
CWA	Clean Water Act
DCGL	Derived Concentration Guideline Levels
DEH	Department of Environmental Health
DTSC	Department of Toxic Substance Control
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
FGEIS	*Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities*
FS	Feasibility Study
FSR plan	Final Site Restoration Plan
FSS	Final Status Survey
GHG	greenhouse gas
GWTS	groundwater treatment system
H_2S	hydrogen sulfide
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
Harbor District	Humboldt Bay Harbor, Recreation and Conservation District

HBGS	Humboldt Bay Generating Station
HBPP	Humboldt Bay Power Plant
IMRAW	Interim Measures Removal Action Workplan
ISFSI	Independent Spent Fuel Storage Installation
LID	Low Impact Development
MCE	Maximum Considered Earthquake
MLLW	mean lower low water
MSA	mean species abundance
NAAQS	National Ambient Air Quality Standards
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
PG&E	Pacific Gas and Electric Company
PSHA	Probabilistic Seismic Hazard Analysis
PM_{10}	particulate matter with aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with aerodynamic diameter less than or equal to 2.5 microns
ppm	part(s) per million
PSDAR	Post-Shutdown Decommissioning Activities Report
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RWCB	Regional Water Quality Control Board
SO_2	sulfur dioxide
SWPPP	stormwater pollution prevention plan
Unit 3	Nuclear Unit 3
Units 1 and 2	Fossil Generating Units 1 and 2
US 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WRCC	Western Regional Climate Center
yd^3	cubic yard(s)

SECTION 1

Project Overview

Pacific Gas and Electric Company (PG&E) operated the Humboldt Bay Power Plant (HBPP) between 1956 and 2010 at a 74.9-acre property in Humboldt County, California (see Figure 1-1). The power plant consisted of two steam generating units (Units 1 and 2) and a boiling water nuclear reactor (Unit 3). The two steam generating units began operation in 1956 and 1958, respectively, and were shut down in 2010. The nuclear unit operated between 1963 and 1976. In 2010, the Humboldt Bay Generating Station (HBGS), located on the same property, came on line to replace the former generation capacity of Units 1, 2, and 3.

PG&E is decommissioning the HBPP and will request termination of their Nuclear Regulatory Commission (NRC) license to own and operate a nuclear reactor. As part of the decommissioning effort, PG&E has prepared a plan for restoration of areas on the HBPP site where Units 1, 2, and 3 and associated buildings, storage facilities, and appurtenant structures once stood. These areas will be restored to repurpose the former HBPP area to support the HBGS and future power generation-related activities on the property as well as to restore to natural conditions areas that are no longer needed for decommissioning or future utility uses. Areas already committed for other operational needs, such as the Independent Spent Fuel Storage Installation (ISFSI), will continue. This Coastal Resources Assessment (CRA) evaluates the potential environmental effects that could occur as the result of implementing a Final Site Restoration Plan (FSR plan) described in Section 2, Project Description, for the HBPP and accompanies an application for a Coastal Development Permit (CDP).

The California Coastal Commission (CCC) has issued numerous CDPs authorizing the activities necessary for PG&E to demolish Units 1, 2 and 3; conduct site remediation activities; and terminate the NRC license. These CDPs include a provision for PG&E to prepare a final restoration plan for the site following decommissioning activities. As an example, Special Condition #3 of CDP E-09-010 requires PG&E to prepare the final restoration plan and submit this CDP application no later than March 31, 2015.[1] The Special Condition states:

> No later than March 31, 2015, the Permittee shall submit a coastal development permit application describing proposed measures to restore the areas affected by the development activities approved pursuant to this permit. The Permittee may request the Executive Director extend this deadline upon a showing of good cause (Coastal Development Permit, E-09-010, Special Condition 3, page 5 of 6, December 17, 2009).

Several other CDPs issued for other HBPP decommissioning activities also included a permit condition requiring that a CDP application be filed to address site restoration.[2]

During construction of the HBGS, which took place under the regulatory authority of the California Energy Commission (CEC), several temporary facilities were developed for use during HBGS construction. These included a construction access road (Alpha Road) and parking area, a laydown area (called Trailer City), a construction parking lot (Contractor Parking Lot #1), a worker pedestrian path, and a pedestrian bridge crossing the Intake Canal. The CEC, required, pursuant to Condition of Certification VIS-2 of the HBGS license, that PG&E "remove all evidence of construction activities and shall restore the ground surface to the original condition or better condition, including the replacement of any vegetation or paving removed during construction where project development does not preclude it." The Condition VIS-2 also required that a Surface Restoration Plan be submitted to the CEC for approval.

[1] This deadline has been changed to April 30, 2015 by agreement with the CCC.

[2] CDPs with permit conditions requiring that a CDP application be filed for site restoration include: E-07-005, E-08-008, E-09-005, and E-09-010-A3.

The Surface Restoration Plan submitted in July 2010 stated that areas used for HBGS construction identified above, would be needed for HBPP decommissioning. The plan described the use of these areas for HBPP decommissioning and identified the CDPs under which the CCC permitted their use. The Surface Restoration Plan also addressed the CCC requirement for submitting a CDP application to address the restoration of these areas. Specifically, under CDP E-09-010 (and CDP E-05-007 for a portion of the Trailer City laydown area), the CCC assumed jurisdiction of these areas and required that they be restored post decommissioning. This and subsequent CDPs and amendments identified and authorized the use of additional areas including the Count Room, Charlie Road, and Waste Management Building during decommissioning.

PG&E has worked closely with the CCC and other regulatory agencies to ensure necessary permits and approvals are in place to meet the requirements of the overall decommissioning project. Much of the work authorized by CDP E-09-010 has been completed, including the following:

- Removal of the aboveground portions of Units 1 and 2, with Unit 3 ongoing
- Removal of supporting fuel storage tanks and fuel conveyance structures for Units 1 and 2
- Removal of the mobile emergency power plants
- Removal and decontamination of the majority of the components associated with Unit 3

PG&E is continuing work to demolish the Unit 3 structures as authorized by CDP E-09-010, has begun work to remove the spent fuel pool and reactor vessel caisson as authorized by Amendment 3 to CDP E-09-010, and is remediating the Intake and Discharge Canals under CDP 9-13-0621. The latter involves removal of contaminated sediments in the intake and discharge canals and also the removal of outfall pipes from the Discharge Canal to Humboldt Bay.

The FSR plan (Chapter 2 of this document) and CRA provide the detailed description and assessment of potential environmental effects in support of a CDP application for the final site restoration of the HBPP that will occur once all of the above-described work has been completed. Figure 1-2 shows the project features. Implementation of the FSR plan will take place during 2018.

1.1 Purpose of the Proposed Project

Final site restoration and reuse planning of the HBPP supports the stated project purpose provided in the 2009 CRA, which is to terminate the license for Unit 3 in accordance with 10 *Code of Federal Regulations* (CFR) 52.110, conduct surface restoration of certain areas, and to restore the land formerly occupied by Units 1, 2, and 3 to conditions that allow for continued utility uses of the former HBPP footprint.

1.2 Scope

The scope of work that will implement the HBPP FSR plan includes the following features:

- Reconfigure those portions of the site that are needed for on-going utility operation uses of the property
- Implement biological resources mitigation prescribed in previous permit proceedings (CCC, CEC, Department of Toxic Substances Control [DTSC], etc.) or that will be required due to the effects of implementing this FSR plan, such as creation of wetlands
- Restore as close as possible to pre-existing natural conditions those portions of the property that are not identified for ongoing utility operations
- Reroute or repair drainage and grade the site to maximize implementation of Low Impact Development (LID) measures
- Reroute, repair or remove communications, and other infrastructure on property as needed and as identified in the FSR plan
- Monitor success of the surface restoration aspects of the FSR plan

Project elements of the FSR plan are described in Section 2.

1.3 Regulatory Framework

The HBPP decommissioning program is being performed as authorized by the NRC and numerous CCC CDPs.

This request for a CDP seeks authorization to implement the FSR plan. The following sections describe the agency permits and authorizations anticipated for to implement the FSR plan. The requirements that are applicable or potentially applicable to the proposed project are listed in Table 1-1.

TABLE 1-1
Summary of the Anticipated Approvals and Permits

Agency	Permit/Approval	Notes
California Coastal Commission	Coastal Development Permit	The CDP serves as the primary state development permit.
California Energy Commission	License Amendment	Amendment of the facility's CEC License to incorporate new areas and facilities within the HBGS fence line and into CEC's jurisdiction
Nuclear Regulatory Commission	License termination (via review and approval of license termination plan submitted by PG&E)	Establishes the final cleanup standards and formally terminates the NRC license.
U.S. Environmental Protection Agency	Concurrence on license termination plan under specific circumstances defined in the NRC/EPA Memorandum of Understanding	The NRC will consult with the EPA when (1) radioactive groundwater is in excess of the EPA's maximum contaminant limits; (2) the NRC contemplates either restricted release or use of alternative criteria for license termination; or (3) hazardous materials are involved that are not under NRC jurisdiction.
Humboldt Bay Harbor, Recreation and Conservation District	Development permit for project involving the area below the Humboldt Bay high tide line (culvert replacements)	Lead agency for California Environmental Quality Act (CEQA) compliance.
U.S. Army Corps of Engineers	Clean Water Act Section 404 permit and Nationwide Permit 27	Activities in jurisdictional waters of the United States, including wetland restoration and storm water drain culvert replacements.
U.S. Fish and Wildlife Service	Endangered Species Act	The USACE will consult with this agency in regards to potential impacts to federally threatened and endangered species.
National Marine Fisheries Service	Magnuson-Stephens Fishery Conservation and Management Act/Endangered Species Act	The USACE may consult with this agency to regarding whether the project would adversely affect critical habitat for listed anadromous fish species and essential fish habitat.
California Office of Historic Preservation	National Historic Preservation Act	The USACE will consult with this agency to determine whether the project would adversely affect historic properties.
California Department of Fish and Wildlife (CDFW)	California Endangered Species Act California Fish and Game Code	CDFW will serve as a consulting agency during the CEQA review process. The project will require a Section 1603 Streambed Alteration Agreement

TABLE 1-1
Summary of the Anticipated Approvals and Permits

Agency	Permit/Approval	Notes
California Department of Toxic Substances Control	Statement of basis to select final remedial actions; additionally, administers state hazardous waste management regulations; and CEQA compliance	Lead state oversight agency for remedial activities. Note that the remedial actions, except as specified in the CRA, are separately permitted and are not part of the FSR plan implementation.
North Coastal Regional Water Quality Control Board	Waste discharge requirements, National Pollution Discharge Elimination System (NPDES) permit, construction stormwater permit and Section 401 water quality certification	Required for wastewater discharges to surface water or land.
Humboldt County Building Department	Grading permit	Grading permit required if 50 cubic yards or more of soil are disturbed.

1.3.1 California Coastal Commission

In accordance with Section 30600(a) of the California Coastal Act (CCA), any person wishing to perform or undertake development in the coastal zone, in addition to obtaining any other permit required by law from any local government or from any state, regional, or local agency, shall obtain a CDP.

The proposed project constitutes development under Section 30106, which provides, in part, that development includes, “grading, removing, dredging, mining, or extraction of any materials…” and “construction, reconstruction, demolition, or alteration of the size of any structure…”

Although Humboldt County has a certified coastal program and is typically the lead agency for issuing a CDP for development in the coastal zone within Humboldt County, the CCC has retained CDP jurisdiction for the area encompassing the HBPP property. Therefore, the CCC will be the permitting agency for the CDP. The Energy and Ocean Resources Division of the CCC processes the CDPs related to decommissioning.

The CDP is a discretionary permit and would be subject to a review under CEQA except that the CDP process is a certified regulatory process in lieu of and functionally equivalent to the CEQA. The Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) will also issue a discretionary permit for this project (see above) and will serve as lead agency for CEQA compliance.

As noted above, the NRC has exclusive jurisdiction over radiological aspects of decommissioning. For projects involving those aspects of the NRC’s jurisdiction, the state is preempted from imposing regulatory requirements concerning radiation hazards and nuclear safety. However, the CCC is compelled to address state concerns related to the proposed project’s conformity to applicable policies of the CCA through its coastal development permitting process. The CCC will issue the CDP for the implementation of the FSR plan.

1.3.2 California Energy Commission

One important aspect of the regulatory framework for implementing the FSR plan is that the portion of the site within HBGS fence line will be under the jurisdiction of the CEC. This is because, under the Warren-Alquist State Energy Resources and Conservation Act (Public Resources Code Section 25000 et seq.), the CEC has sole and exclusive jurisdiction in California over state and local regulatory processes for power plants using a thermal process to generate power and with more than 50 MW in nominal generating capacity. The CEC’s jurisdiction includes the site and all ancillary facilities associated with actual power production and delivery. This means that certain areas of the overall site addressed in the FSR plan will be implemented pursuant to the CEC regulatory authority. Specifically, the CEC will be processing an amendment to the HBGS License to expand the current HBGS site boundaries to encompass areas that

were occupied or used for non-HBGS uses at the time of the original licensing. To provide consistency and facilitate agency coordination, PG&E will file a Petition to Amend the HBGS License to change the site boundary shortly after this CDP Application for the FSR plan implementation is filed.

The CEC has the responsibility in its licensing processes to make a finding that a project or proposal would comply with applicable Laws, Ordinances, Regulations, and Standards (LORS) and also to consult with the agency that would normally have jurisdiction, but for the CEC's over-riding jurisdiction for power plants, regarding compliance with LORS. The CEC will therefore consult with the CCC and request their comment for the portions of the property that are under CEC's sole jurisdiction and within the HBGS site boundary. The CEC compliance unit will have the responsibility, as well, to ensure that PG&E complies with any Conditions of Certification for the HBGS portions of the site going forward for the term of the license.

The FSR plan, furthermore, discusses the expansion of the existing HBGS site boundary, which will be covered in the CEC amendment. This expansion is needed because the HBGS was constructed within a very constrained area, which was the only available area while Units 1 and 2 were still in place. HBGS needs additional space for safe, secure, and efficient operation. This expansion, as described in Section 2, will incorporate parking and storage areas at the locations of former Units 1, 2, and 3 (HBPP Core Area), the existing Waste Management Building area, which will be converted by HBGS for use as a warehouse, and operation of the stormwater management system for the 74.9-acre site. In addition, Alpha Road, which will be paved and upgraded in some areas as part of site restoration, will be used by HBGS as the primary access road for HBGS.

PG&E will submit a Petition to Amend the HBGS License to the CEC and this petition will address the new proposed boundaries of the HBGS facilities. However, given the continuing completion of the HBPP decommissioning activities, including site restoration, the HBGS boundary changes will not be actuated until site restoration is complete. Figure 1-3 shows the proposed jurisdictional boundaries that would be in effect, pending CEC approval of the Petition to Amend.

1.3.3 Nuclear Regulatory Commission

The lead agency for the nuclear license termination program is the NRC. The NRC is responsible for ensuring, through regulations and other guidance, that appropriate regulations and procedures are followed in decommissioning of a nuclear facility to protect the health and safety of the public. The NRC has exclusive jurisdiction over radiological aspects of the decommissioning activities including radiological clearance of land areas or remaining structures associated with the license. Any areas planned for excavation or other ground disturbance activities as part of a remediation or restoration implementation effort must meet specified clearance criteria.

The National Environmental Policy Act of 1969 (NEPA) requires federal agencies, as part of their decision-making process, to consider the environmental impacts of actions that are under their jurisdiction. The NRC has promulgated regulations to implement the NEPA requirements under 10 CFR Part 51. A final environmental impact statement (EIS) for decommissioning Unit 3 was prepared by the NRC in April 1987, which then fulfilled the NEPA requirements for the project to place the plant into SAFSTOR for approximately 30 years. Since 1987, the NRC has completed additional environmental reviews to address the post-SAFSTOR decommissioning efforts.

10 CFR 50.82(a)(4)(i) requires PG&E's post-shutdown decommissioning activities report (PSDAR) to include "a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements." PG&E originally assessed the environmental impact of the Unit 3 decommissioning activities in the Unit 3 environmental report, dated July 30, 1984. The NRC's response to the environmental report is documented in NUREG-1166, dated April 1987.

PG&E assessed the environmental impact of Unit 3 decommissioning in accordance with NUREG-0586, *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (FGEIS), dated August 1988. Subsequently, the NRC evaluated the environmental impacts of decommissioning nuclear facilities, including HBPP, in *NUREG-0586, Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, Supplement 1* dated November 2002. The supplement updates information from the 1988 FGEIS regarding the technological advances in decommissioning activities and changes in the NRC regulations.

Revision 4 of the PSDAR concluded that Unit 3 decommissioning will be accomplished with no significant adverse environmental impacts and that the evaluation of potential impacts is bounded by prior environmental impact statements.

The NRC has authorized PG&E to continue decommissioning activities in accordance with the PSDAR. The NRC will monitor progress of the project through regularly scheduled inspections by NRC personnel, regular updates of the PSDAR and regular correspondence with PG&E. For the NRC to terminate PG&E's license, PG&E must submit, at least 2 years in advance of license termination, a License Termination Plan for review and approval by the NRC. The License Termination Plan includes an update to previous environmental assessments to demonstrate no significant adverse environmental impacts. The Unit 3 license expires in 2015, but will continue in effect beyond the expiration date until the NRC notifies PG&E that the license is terminated. The License Termination Plan was revised and resubmitted to the NRC in August 2014, as a result of a request for additional information by the NRC on the original submittal. Approval of the License Termination Plan is anticipated in early 2015. PG&E expects license termination to be completed in 2019/2020 following completion of Final Site Surveys (FSS) in 2018/2019 and submission of a summary report.

As part of license termination, Final Status Surveys (FSS) must be conducted throughout the HBPP property. Areas where the Derived Concentration Guideline Levels (DCGLs) are found to have been exceeded will require remediation.[3] If the soil in an area is above the DCGL, it will be excavated and disposed of off-site at an appropriate disposal facility. Remediation and excavation of radiological contamination will continue on the site during decommissioning and restoration. However, any excavation/remediation in wetland areas will be addressed in a separate permitting action by the CCC.

PG&E will conduct FSS in areas where it can be assured the area cannot potentially be re-contaminated by on-going decommissioning or restoration activities. Given this, the FSS for some areas may be conducted post-restoration. Results of the FSS will be compiled into Survey Area Reports and submitted to the NRC for concurrence that the area meets the NRC approved release criteria. Once all areas have been shown to meet the clearance criteria, the NRC may then cancel the 10 CFR 50 license for the site. The Interim Spent Fuel Storage Installation (ISFSI) will continue to be licensed under a 10 CFR 72.

1.3.4 Humboldt Bay Harbor, Recreation and Conservation District

The permitting jurisdiction of the HBHRCD includes waters of Humboldt Bay up to the mean higher high water mark. Their jurisdiction includes the portion of the Intake Canal within which the FSR plan calls for replacement of two existing storm water drain culverts. The HBHRCD is a county-wide agency with permit jurisdiction over all tide, submerged, and other lands granted by the State of California to the HBHRCD including all of Humboldt Bay.

Proposed developments within the HBHRCD's jurisdiction require a permit from the HBHRCD, and the HBHRCD will serve as the lead agency for compliance with the provisions of CEQA for the implementation

[3] Derived Concentration Guideline Level (DCGL) – Derived radionuclide- specific activity concentration that corresponds to the release criterion (25 millirem/year) within a survey unit.

of the FSR plan. The HBHRCD permit and CEQA determination would be issued before the CDP and the USACE permits, as the latter require evidence of prior compliance with CEQA.

As part of the CEQA review process, the HBHRCD would consult with the California Department of Fish and Wildlife (CDFW) as a Trust Resources Agency regarding potential impacts to species listed under the California Endangered Species Act.

1.3.5 U.S. Army Corps of Engineers

The HBPP Intake Canal is connected with Humboldt Bay and is therefore regulated as Waters of the United States. The FSR plan involves replacement of two storm water drain culverts that are below the mean high tide line in the Intake Canal. In addition, the project will create wetlands in the Trailer City area that may become jurisdictional. FSR plan implementation also involves minor impacts to wetlands necessary to realign Alpha Road and to recontour the Bayview Heights area. To authorize these actions, the project will require a permit under Section 404 of the Clean Water Act (CWA) from the U.S. Army Corps of Engineers (USACE). When a Section 404 permit is issued, then a water quality certification under Section 401 of the CWA is also required and this certification is provided by the North Coast Regional Water Quality Control Board (NCRWQCB). This work would most likely be conducted under a Nationwide Permit #27, "Aquatic Habitat Restoration, Establishment, and Enhancement Activities" for the culverts. This NWP authorizes activities in Waters of the United States such as "…the installation, removal, and maintenance of small water control structures…" For the Alpha Road re-alignment, NWP #14 "Linear Transportation Projects" would likely apply.

Because the Intake Canal may also provide habitat for federally listed fish species, the USACE will consult with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA) regarding the potential for the project to adversely affect these species and their critical habitat.

The USACE will also consult with the California Office of Historic Preservation whether the project will affect historic properties or cultural and archeological resources.

1.3.6 North Coast Regional Water Quality Control Board

The decommissioning project is governed by the project's Construction General Permit (WDID 12C357418) NPDES Permit No. 0005622 issued by the NCRWQCB. The HBPP construction Stormwater Pollution Prevention Plan (SWPPP) would be amended by the proposed project's Qualified SWPPP Developer to address information provided by the contractor regarding design, implementation, operation, monitoring, and reporting of activities associated with implementing the restoration plan.

As described previously, the NCRWQCB is additionally expected to issue a water quality certification under Section 401 of the CWA in concert with the USACE Section 404 permit.

Condition 12 of the HBGS 401 Water Quality Certification issued in October 2008 by the NCRWQCB requires that the HBGS submit a post-construction stormwater management plan for the HBPP site. The HBGS 401 Certification was issued prior to the development of HBPP decommissioning plans. The NCRWQCB wanted to ensure that HBPP stormwater management was addressed as part of decommissioning so a permit condition regarding the HBPP site was included in the HBGS 401 certification. The plan is to include details on proposed storm water treatment measures to address impacts associated with stormwater runoff quality and quantity from all remaining impervious surface areas associated within the HBPP footprint. In addition, the plan is to utilize LID techniques, where practicable. Originally the plan was to be submitted upon completion of construction of the HBGS. However, the condition was amended in September 2009 to require it be submitted by March 31, 2015 (later extended), when further information regarding the HBPP decommissioning and site restoration was available. The FSR plan developed for the HBPP incorporates the

stormwater management plan to be submitted to the NCRWQCB pursuant to 401 Water Quality Certification Condition 12.

1.3.7 California Department of Toxic Substances Control

1.3.7.1 Interim Measures Removal Action Work Plan

In conjunction with the CCC approval of CDP E-09-010, the DTSC approved the Interim Measures Removal Action Work Plan (IMRAW) to govern the management of soil generated by the decommissioning project (ARCADIS, 2009). The IMRAW ensures consistency for managing soils excavated as a result of ongoing decommissioning and demolition activities at the HBPP where chemical contamination may exist. To date, some of the soil that has been excavated during implementation of the HBPP decommissioning and demolition projects contained constituents of concern (COCs).

1.3.7.2 Remedial Action Plan

PG&E submitted the draft Feasibility Study (FS) and Remedial Action Plan (RAP, combined FS/RAP) to the DTSC on October 10, 2014 and these documents are currently under the DTSC review. The RAP updates the soil contaminant screening thresholds and addresses the restoration and redevelopment of the HBPP. This plan will supersede IMRAW once approved and a decommissioning/restoration soil management plan (SMP) will be prepared to replace the IMRAW to address soil management during any remaining decommissioning and restoration activities. The RAP also evaluates the current nature and extent of chemical contaminants in soil, groundwater, and sediment presented in the Revised Additional Site Chemical Characterization Report (AMEC, 2014a) and recent analytical test results of samples that were not presented in the report. The RAP also considered the results of the Human Health Risk Assessment (AMEC, 2014b) and Predictive Ecological Risk Assessment (AMEC, 2014c) that were prepared to analyze the potential for adverse human health or ecological effects that may result from potential exposure to chemicals detected in soil and groundwater based on current and projected future use of the site. As part of the evaluation of the nature and extent of chemical contaminants, soil, groundwater, and sediment results were evaluated against proposed Site-specific screening levels (SLs). The results of that analysis identified PCBs, arsenic, lead, PAHs, mercury, LPAHs, asbestos, and creosote-treated timber pile areas as the primary COCs.

Using results from the risk assessments and evaluation of chemical concentrations compared to proposed Site-Specific screening levels established for the protection of human health and the environment and the potential risk to groundwater quality, nine soil and one sediment location(s) were identified as having concentrations of COCs that exceeded the final cleanup goals. The RAP recommends pre-excavation soil characterization and limited soil excavation activities. The SMP will include implementation details regarding recommended actions including the detailed protocol for the sampling, screening, removal and disposal of soil produced during the decommissioning and future restoration and development activities.

The RAP also identifies further protections to be provided in the form of land use covenant(s) that will be recorded and implemented for the Site that prohibit future land and groundwater uses, such as residential, hospitals, schools, and daycare centers. In addition, there will be a proposed 5 to 10 years of groundwater monitoring to verify stable and/or decreasing concentrations of Constituents of Potential Concern (COPCs) with no significant migration.

COCs on site may also include radiological constituents such as Cesium-137. However, the cleanup of radiological contamination is being performed under the regulatory oversight of the NRC as part of its license termination process.

The FS/RAP identifies areas where remediation will occur as a result of FSR plan implementation. It is possible that FSR plan implementation may encounter contamination that is not specifically identified in

the FS/RAP[4]. Contamination will be managed in accordance with the procedures developed for the HBPP decommissioning program and in the SMP that will be prepared once the FS/RAP is approved by DTSC. These areas are discussed further in the project description (Section 2.0) and impact assessment (Section 3.3.6, Hazardous Materials) sections.

1.3.8 California Department of Fish and Wildlife

The CDFW will serve as a cooperating agency during the HBHRCD's CEQA review process and will be requested to offer comments on the project's potential effects on species listed under the California Endangered Species Act. The project will also require a Lake and Streambed Alteration Agreement under Section 1602 of the California Fish and Game Code because of work within and near the high tide line of Buhne Slough, which is a water of the state. This work will be done in conjunction with the re-alignment of the Alpha Road intersection with King Salmon Avenue.

1.3.9 Other Requirements

In addition to the above-listed permits and authorizations, the proposed project will continue to be subject to additional consultations or approvals as needed to address specific qualifying actions. Requirements that are applicable or potentially applicable to the proposed project, including those discussed above, are listed in Table 1-1.

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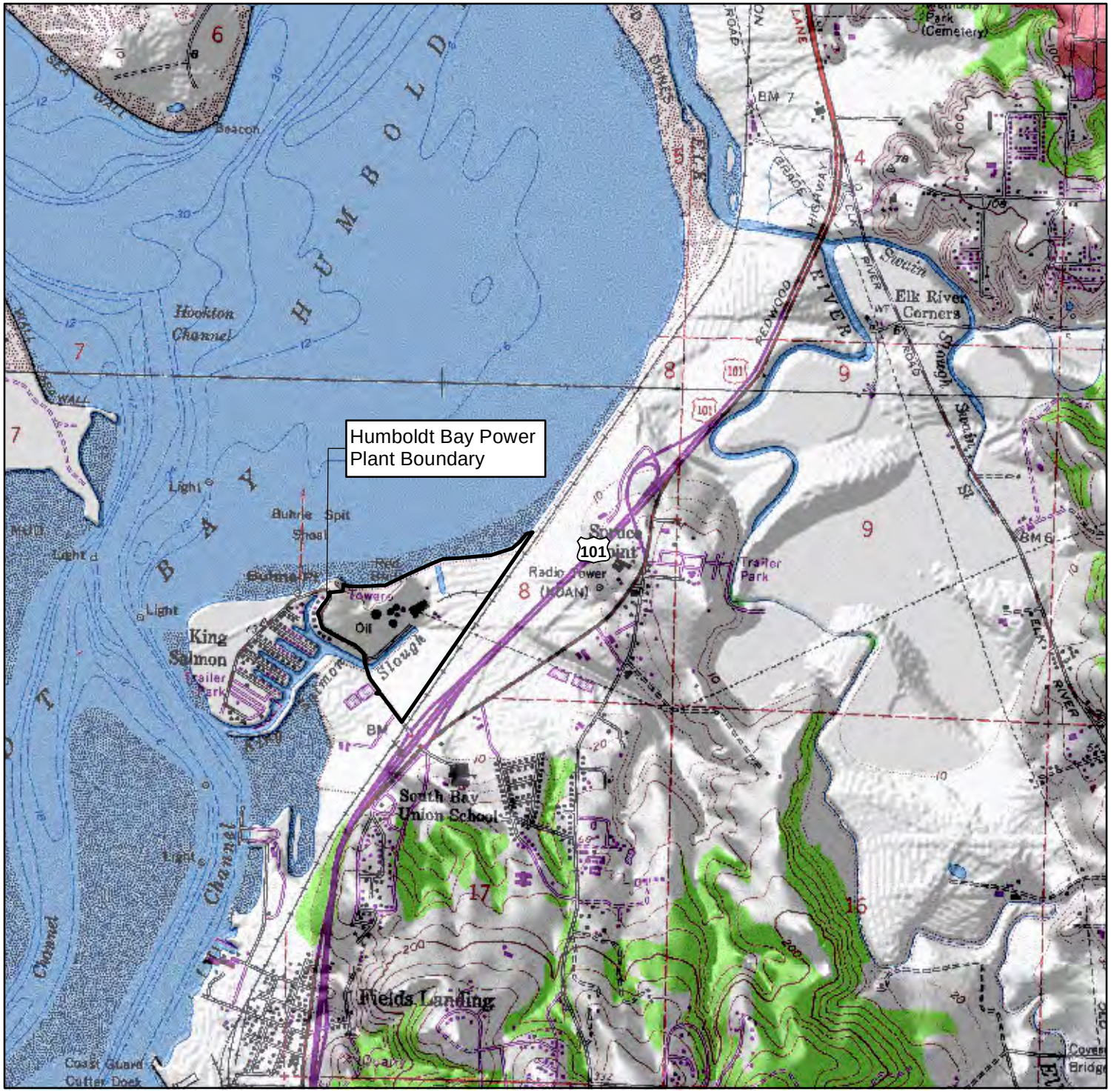
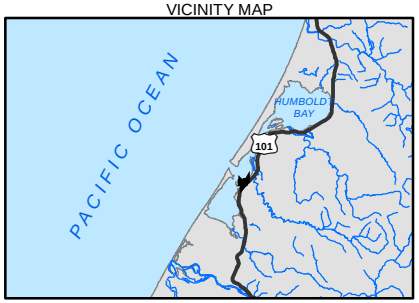
CH2M HILL. 2014. Humboldt Bay Power Plant Feasibility and Remediation Action Plan. November 2014.

[4] FS/RAP addresses remediation of soils with unanticipated contamination.



VICINITY MAP



LEGEND

PROPERTY BOUNDARY

N

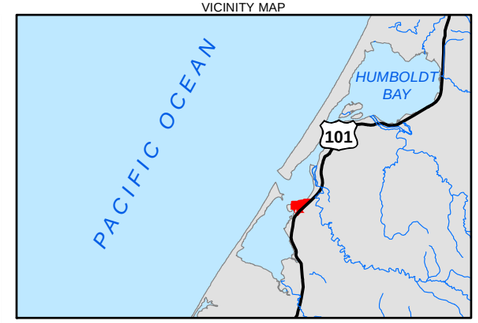
0 1,000 2,000

FEET

FIGURE 1-1
Location Map
HBPP Final Site Restoration Plan
PG&E Humboldt Bay Power Plant, Eureka, California

FIGURE 1-2
HBPP Site Features
HBPP Final Site Restoration Plan
PG&E Humboldt Bay Power Plant, Eureka, California

VICINITY MAP



LEGEND

California Coastal Commission's Jurisdiction

California Energy Commission's Jurisdiction

N

0 300 600

FEET

Image Source: PG&E HBPP June 5, 2014

FIGURE 1-3
Proposed Jurisdictional Boundary
HBPP Final Site Restoration Plan
PG&E Humboldt Bay Power Plant, Eureka, California

SECTION 2

Project Description

2.1 Project Objectives, Approach, and Elements

This FSR plan describes the conceptual approach to restoration within the HBPP site areas and subareas, the construction activities needed for infrastructure modification and surface restoration, and any post-construction monitoring necessary to ensure successful restoration. In addition, if elements of the FSR plan indicate a change from restoration plans described in previous CDPs, then the subsection describes the original proposal, the change in plan, and the reasons for the change.

This FSR plan does not discuss plans or proposals for decommissioning the HBPP facilities or remedial actions that remain for site cleanup unless they are directly related to implementation of the FSR plan. Decommissioning and remedial actions not directly related to implementing the FSR plan are discussed in the FS/RAP (CH2M HILL 2014), and are addressed under a separate CEQA regulatory process with the DTSC as the lead CEQA agency. However, remediation activities in wetland areas not addressed in the Coastal Resources Assessment will be addressed in a separate permitting action to the CCC. This FSR plan does address plans for remedial actions that must occur in conjunction with the implementation of the FSR plan. Preliminary design plans (paving, access, drainage) are found in Appendix A.

To facilitate FSR planning, the HBPP property has been divided into 12 functional areas, most of which have subareas. The areas correspond with planned usage zones and specific restoration and reuse plans. The project areas are listed in Table 2-1 and mapped in Figure 2-1. The proposed landscape design areas are shown in Figure 2-2.

TABLE 2-1

HBPP Final Site Restoration Areas and Subareas

Area / Subarea	Acres	Reuse Category	Applicable CDP/permit
1 - Buhne Point			
1a Buhne Point Vista	0.48	No change from current	CDP E-09-0631
1b Buhne Point Tsunami Assembly Area	2.67	No change from current	-
1c Shoreline Trail	2.66	No change from current	CDP E-05-001
1d Charlie Road	0.31	Restore to pre-project	CDP E-08-003, E-08-003-A1, CDP E-09-005
	6.12		
2 - ISFSI and ISFSI Support Area			
2a ISFSI	2.89	No change from current	CDP E-05-001, E-09-005
2b ISFSI Support - Count Room	0.29	Remodel as ISFSI Support Offices	CDP E-09-005-A1
2d ISFSI Support Parking Lot/Contractor Lot #2	0.65	Maintain a portion for parking	CDP E-08-003-A1
2e ISFSI Support Stormwater Basin	0.75	Create new stormwater basin from portion of Contractor Lot #2	Permitting for parking lot under CDP E-8-003-01
2f HBPP Warehouse/Workshop/Office	0.93	No change	CDP E-09-010
	5.69		
3 - Bayview Heights	6.86	Restore to pre-project, retain roadways, slope stability improvement, add turn-around	CDP E-09-010, E-08-008, E-08-008-A1

TABLE 2-1

HBPP Final Site Restoration Areas and Subareas

Area / Subarea	Acres	Reuse Category	Applicable CDP/permit
4 -Trailer City			
4a Trailer City Main	3.61	Restore to CCC wetlands	CDP E-07-005, E-09-010
4b Trailer City Stormwater Detention Basin	0.57	Create stormwater basin by expanding existing drainage ditch	-
	4.18		
5 - Duck Pond	6.63	Interconnected with the Trailer City wetlands	-
6 - HBPP Core			
6a HBPP Core Area (Former Units 1, 2, 3 area)	2.91	HBGS storage and parking	CDP E-09-010
6b Waste Management Building	1.71	Modify as HBGS warehouse	CDP E-09-010
6c Frog Pond Stormwater Detention Basin	0.34	Regrade and replant basin /replace storm water drain culvert	
	4.96		
7 - Humboldt Bay Gen Station/60 kV Substation			
7a HBGS Power Plant	5.21	No change from current	CEC License, 06-AFC-7
7b 60 kV Substation	1.16	No change from current	-
7c REST-1 Wetland Mitigation Area	0.89	No change from current	CEC License BIO-12
	7.26		
8 - Intake Canal			
8a Intake Canal	2.50	Create mitigation wetlands	CDP 9-13-0621
8b Alpha Road Parking Lot	0.75	Create mitigation wetlands	CDP 9-13-0621
8c Alpha Road	0.96	Maintain as site access for HBGS, pave	CDP E-09-010
8d, e Alpha Road Overflow Parking	0.11	Restore to pre-project condition	CDP E-09-010
	4.32		
9 - Assembly Building Area			
9a Assembly Building Structures	0.76	Remove buildings and restore surface	-
9b Assembly Building Parking Lot	0.08	Resurface and maintain as open storage and parking	-
9c Bravo Road and Security Parking Spaces	0.71	Maintain Bravo Road as HBGS secondary site access, maintain parking areas as open storage	-
	1.55		
10 - Buhne Point Wetland Preserve			CDP E-07-005, E-08-003, E-09-005, 9-13-0621
10a Buhne Point Wetland Preserve Proper	6.12	Replace tidal flow culvert	-
10b Buhne Point Wetland Preserve Fringe	0.99	Remove storage containers and restore surface	-
10c Contractor Pedestrian Trail	0.48	Remove trail and restore surface	CDP E-09-010
	7.59		
11 - Contractor Parking Lot #1			

TABLE 2-1

HBPP Final Site Restoration Areas and Subareas

Area / Subarea	Acres	Reuse Category	Applicable CDP/permit
11a MIT-1	0.43	Create mitigation wetlands	CEC License BIO-12
11b MIT-6	0.26	Create mitigation wetlands	CDP E-09-0631
11c MIT-7	0.38	Create mitigation wetlands	Mitigation for retention of Portal Road and Alpha Road as permanent roads CDP E-09-005 and CDP E-09-010
11d Contractor Parking Lot #1 Northeast	0.17	Remove gravel entranceway	-
	1.24		
12 – Buhne Slough Salt Marsh	18.51	No change from current	-
Total Acres in Restoration Plan	74.90		

2.1.1 Project Objectives

Implementation of the FSR plan supports the HBPP Decommissioning program to terminate the NRC license for Unit 3 in accordance with 10 CFR 52.110, and to restore the land formerly occupied by Units 1, 2, and 3 to conditions that allow for continued utility operation of the property. As stated previously, the FSR plan also meets the requirements of the major decommissioning CDP (CDP E-09-010) to prepare and submit a restoration plan by March 31, 2015 (later changed to April 30, 2015). This plan will be implemented when removal of the HBPP components is complete. An additional objective of the FSR plan is to comply with HBGS 401 Certification Condition 12, which requires PG&E to submit a storm water management plan for the former power plant site. The FSR plan has incorporated grading and drainage measures that maximize implementation of LID measures, as required by the Condition.

2.1.2 Low-Impact Design and Storm Water Management

Excavation and grading plans that are part of the FSR plan (see Appendix A) will reconfigure site drainage consistent with LID principles. As part of decommissioning and restoration, portions of the existing storm water conveyance system will be retained, while other sections will be entirely removed, resulting in significant alteration to drainage patterns and outfalls. The LID design techniques protect and enhance surrounding habitat resources. This is done by minimizing impervious surfaces and developing a network of bio-swales or vegetated swales, and bio-detention basins located throughout the project area designed to retain and treat storm water flows. The new major storm water detention basins are located in the Trailer City and ISFSI Support areas (see descriptions below). In addition, an existing basin, the Frog Pond, will be re-contoured and connected functionally with the new ISFSI storm water basin. Finally, several smaller basins will be created at strategic places around the property. The locations of these are shown on the grading and drainage plan in Appendix A.

Treatment of runoff will occur in the swales and basins through a combination of sedimentation, adsorption and other natural processes that help to remediate constituents of concern such as petroleum hydrocarbons and metals to less than significant levels. These processes are enhanced with the help of a community of native plants and soil planted and maintained within the swales and basins. The system will be designed so that it will retain 100 percent of the volume of runoff from the 85th percentile, 24-hour, storm, for an average of 48 hours.

2.1.3 Site Access

No new access routes are planned into the site. Two of the existing three entry points to the property are sufficient to support the proposed project. Maintaining Alpha and Bravo roads provides the HBGS with two entrances as required for fire safety, emergency response, and daily routing of truck traffic and delivery flows (See Figure 1-2 for road locations). Alpha Road will serve as the main access road to HBGS, with Bravo Road providing secondary access. Alpha Road also provides a route suitable for heavy haul items. These include transport of the ISFSI casks, substation transformers, and HBGS engines. Weight restrictions on the King Salmon Avenue Bridge (located between Alpha and Bravo roads) and a restricted turning radius on Bravo Road precludes PG&E from transporting heavy loads on Bravo Road. In addition, the heavy loads must all travel a route having a structural cross section of the road that has sufficient capacity for the anticipated load. Given this, Alpha Road will be paved. In addition, a minor re-alignment of the Alpha Road intersection with King Salmon Avenue will be necessary to meet Humboldt County safety standards that require a 90-degree intersection angle for permanent roadways. The surfacing plan drawing in Appendix A shows the areas requiring additional paving and the traffic flow pattern drawing shows expected traffic patterns after implementation of the FSR plan.

Charlie Road is no longer needed for access and will be restored to pre-project conditions.

2.1.4 Restoration and Reuse Plans, by Project Area and Subarea

The following discussion starts at the northwest corner of the property at Buhne Point and proceeds roughly clockwise around the site.

2.1.4.1 Area 1 - Buhne Point

Buhne Point is the highest point of land on the property, sloping up from the ISFSI area to a peak at an elevation of approximately 64 feet above sea level, from which a narrow ridge descends to the northwest, away from the HBPP. Buhne Point is covered in North Coast Coniferous Forest (predominantly Sitka Spruce) and Coastal Bluff Scrub ecotypes. This area has not required demolition of the HBPP facilities or construction of new facilities, except as noted below. Neither land modifications nor surface restoration are proposed for this area.

1a–Buhne Point Vista—Buhne Point Vista is an open and flat spot located part of the way up Buhne Point Ridge and is situated approximately 20 feet above the surrounding lowland area. It is reached by a trail leading through forest and shrubs from a location adjacent to King Salmon Avenue and Charlie Road.

As mitigation for the temporary loss of coastal access (CDP 9-13-0621 for the Canal Remediation project), PG&E constructed improvements to the Buhne Point Vista in October of 2014. These included removing the deteriorating wooden retaining wall and bench structure and replacing the wood wall with a concrete wall and bench, filling the erosional rills on the slope below the vista with rock, and installing a metal pole/cable rail restraint fencing system around the edges of the vista for safety and to discourage hikers from using the informal trails up and down the slope that caused the erosion.

1b–Tsunami Assembly Area—From the Buhne Point Vista, a trail leads through shrubs and trees, reaching an open area at the top of the ridge (elevation 59 feet above mean sea level) that is clear of trees and overlooks the ISFSI. This area is posted by PG&E as a No Trespassing area except in case of a tsunami, in which case this area serves as the Humboldt County designated tsunami assembly/refuge area for residents of King Salmon and Fields Landing.

1c–Shoreline Trail—Adjacent to Buhne Point and along the north-northeast boundary of the HBPP property is the Humboldt Bay shoreline, which is fronted by very large rip-rap boulders placed there for shoreline protection. As part of CDP E-05-001 to construct the ISFSI, PG&E constructed a trail along the shoreline, between the rip-rap and the Buhne Point bluffs that will at some point in the future become

a segment of the Humboldt Bay Trail. The trail extends past the HBPP property to the east and is incomplete between this point and the Elk River to the northeast (Redwood Community Action Agency 2001). As required by the NRC, PG&E has installed fencing with gates at two points on the trail where the Buhne Point bluffs approach the ISFSI in case the ISFSI Support personnel need to close the trail near the ISFSI for security reasons.

1d–Charlie Road—Charlie Road is currently an access road from King Salmon Avenue/Buhne Drive to the Count Room and the ISFSI via Portal Road. Originally a local road named Buhne Avenue provided access to Buhne Point and it was abandoned when King Salmon Avenue was constructed in the 1950s. It had become partially overgrown when it was re-established to provide better access to the site for the HBPP Decommissioning Program. Charlie Road was paved and widened for the Decommissioning Program. CDPs E-08-003 and E-08-003-A1 authorized the installation of an improved Charlie Road and contain provisions for restoring the road to pre-project conditions. Mitigation was provided for the temporary and permanent impacts due to the construction and subsequent improvements to Charlie Road at that time. No longer needed for decommissioning access, the road area will be restored to its pre-project condition as CCC wetlands once decommissioning is complete.

2.1.4.2 Area 2 - ISFSI and ISFSI Support Area

The ISFSI (dry cask storage facility) is a secure storage vault for the Unit 3 spent fuel and other high-level radiological waste. The material is contained in six storage casks installed in an underground vault located on Buhne Point hill. The ISFSI area is secured, fenced, and guarded by PG&E ISFSI Support personnel. It was constructed in 2007 under mandate of the NRC. The Unit 3 spent fuel was transferred to the ISFSI in 2008. Area 2 (ISFSI and ISFSI Support) includes the fenced area of the ISFSI and adjacent areas used by the ISFSI Support as office space, security buffer, access, and (planned) stormwater detention. Long-term goals for this area are limited to maintaining ISFSI security.

2a–ISFSI—The ISFSI has been in operation for several years. The ISFSI is fenced and can be accessed either from the east-northeast from Bayview Drive, RCA Way, and Alpha Road and the west-southwest via Portal Drive and Charlie Road. The FSR plan does not include any proposals to modify the ISFSI, its surrounding security buffer, or access other than adding a patrol path to the adjacent area and electrical infrastructure for security equipment (see Bayview Heights).

CDP E-09-005 authorized the installation of Portal Road (Access Road #2) and contained provisions for restoring the road to pre-project conditions. Although mitigation was provided for the temporary and permanent impacts due to the construction of Portal Road, the road area was to be restored to its pre-project condition as grasslands once decommissioning was complete. Portal Road will be maintained for secure access to the ISFSI from the ISFSI Support Office. The creation of new wetlands at a location called MIT-7, which is a portion of the current Contractor Parking Lot #1, subarea 11c in Area 11 (see discussion below) will help mitigate for the conversion of temporary to permanent impacts.

2b–ISFSI Support Office—The ISFSI Support currently occupies temporary office trailers and the Security building in the HBPP Core area. After decommissioning is completed, ISFSI Support personnel will move to the building currently called the Count Room. The Count Room is located much closer to the ISFSI and this will allow for the ISFSI Support personnel to carry out their security mission more efficiently. The Count Room will be remodeled to accommodate the ISFSI Support personnel's administrative needs.

2c–ISFSI Entrance Road—With the closure of Charlie Road, the ISFSI area will require a secure entrance road for access to the ISFSI Support Office and the ISFSI. A new road will be created connecting the Assembly Building parking/Bravo Road and the Count Room, between the ISFSI stormwater detention pond and the Frog Pond storm water detention pond. A culvert under the new road will connect the two ponds. Construction of the entrance road will take place in conjunction with the remediation of a

small area of contamination associated with the former Liquid Fuel Tank #2 (formerly at the site of the Count Room) in the Frog Pond area and the reconfiguration of the existing Frog Pond as a stormwater detention basin.

2d–ISFSI Support Office Parking Lot (Contractor Parking Lot #2)—The area known as Contractor Parking Lot #2 was constructed following removal of LFO Tank 2 to provide decommissioning parking and later to serve the Count Room area during decommissioning. As with Charlie Road and the Count Room, CDPs E-08-003 and E-08-003-A1 authorized this parking lot and required the restoration of the area to pre-project conditions after decommissioning. The eastern portion of this parking lot will be retained to serve as parking for the ISFSI Support administrative office. The remainder of the lot will be converted into a stormwater detention basin (Area 2e).

2e–ISFSI Support Stormwater Detention Basin—The western portion of the Contractor Parking Lot #2 will be excavated to create a stormwater detention basin that will collect and detain stormwater from Buhne Point hill and the ISFSI area and release it slowly to the Buhne Point Wetland Preserve. The stormwater detention basin will be located between the road providing access to the ISFSI Support office and the existing perimeter fence.

The design will provide two outfalls from the basin to match the existing locations of current site outfalls; this will minimize hydrologic impacts to the wetland. Flows from this basin will be released through adjustable weirs into the adjacent Buhne Point Wetland Preserve. Planting within the basin may include species such as bulrush *(Scirpus spp.*) and other wetland obligates. Side slopes and uplands will be planted with a mix of native grass seed and low lying herbaceous plants.

The installation of this stormwater detention basin will require the removal of a number of obsolete utilities. Removed commodities will include the obsolete portion of the:

- Storm drainage system: piping, catch basins, and oily water separator, which are superseded by the installation of the stormwater basin or located beneath the proposed stormwater basin
- Truck scale and associated portal monitor, as the need to monitor the site for radioactive contamination and track precise vehicle weights will no longer be required
- Communication and electrical conduits serving the truck scale and portal monitor

Critical utilities that will be retained and therefore constrain the location and design of the proposed stormwater detention basin, include:

- Domestic and fire suppression water line serving the ISFSI and associated ISFSI Support area, running parallel to the eastern edge of the stormwater detention basin
- Sanitary sewer line serving the ISFSI Support Office, which constrains the eastern edge of the proposed stormwater detention basin

The surface cover will be removed and reconfigured and the associated storm drainage system will be graded to route the surface run-off from the ISFSI Support Office parking lot to a collection area. Storm water run-off from incidental traffic into and out of the parking area will be allowed to surface-flow directly into the stormwater detention basin.

Because of its connectivity to the Frog Pond stormwater pond, this area will be added to the HBGS fenced area and incorporated in the HBGS's CEC license through a petition to amend the license. However, since the reconfiguration of the Frog Pond stormwater basin is part of CCC required HBPP site restoration, the HBGS boundary changes will not be actuated until after site restoration, including the development of the stormwater management system, is complete.

2f–Warehouse/Workshop, Office, and Security Buildings—Although located within the boundaries of the HBPP Core Area (Area 6), the HBPP warehouse and workshop (Building 5), office (Building 6), and

security (Building 7) buildings will remain and will come under the control of ISFSI Support for offices and conference space, training exercises, and other security program activities. Minor remodeling of these facilities will be made after decommissioning of the surrounding areas. At some future time, these buildings may be demolished and the area restored for reuse.

2.1.4.3 Area 3 - Bayview Heights

Bayview Heights is the area on Buhne Point hill adjacent to and east and south of the ISFSI. A portion of this area to the south and downslope of the ISFSI is currently open space. To the east of the ISFSI, this area contains buildings that were formerly associated with Unit 3 decommissioning and open storage areas used for decommissioning laydown. There is also an area that contains construction trailers that provide office space for the decommissioning staff. A pedestrian path connects the ISFSI area with the HBPP Core Area (formerly Units 1, 2, and 3, see description of Area 6, below).

The HBPP decommissioning program calls for the demolition of the existing buildings and removal of construction trailers and laydown materials infrastructure and building foundations in this area. Existing roadways (RCA Way and Bayview Drive) will remain. Bayview Drive will be expanded to include a new turnaround for delivery trucks at the ISFSI gate (refer to the paving plan in Appendix A for a conceptual paving design). At some point in the future when a public repository for the spent fuel casks becomes available, a larger turnaround will be needed for the vehicle that will haul away the spent fuel casks to the repository. A level area will be created next to Bayview Drive for this purpose, and the area restored to grassland. When the repository becomes available, this area will be paved for cask transport access.

Soil excavated from other areas of the HBPP was placed in the northeastern corner of Bayview Heights as fill material in 2009. The soil potentially contains low levels of radioactivity. Limited chemical sampling of the fill did not identify any non-radiological chemical contamination. This fill will be removed as part of FSR and will be sampled for radiological and non-radiological chemical contamination. It is expected that the fill will meet criteria to be able to be reused onsite; however, the excavated fill will be properly disposed of if sampling indicates impacted soil does not meet reuse criteria, per the FS/RAP, or if it is above the limits authorized by the NRC.

In addition, a location with elevated concentrations of lead in soil that currently lies beneath the fill, is included as a potential soil removal area in the FS/RAP. The area is also identified as an area requiring additional characterization in the License Termination Plan. A planned pre-excavation soil investigation will be conducted to confirm the presence of lead and other potential contamination and to further define the volume of soil to be removed. It is expected that remediation of this area will likely be performed in conjunction with the FSR implementation in this area.

After the structures and infrastructure and any contamination are removed, the area will be graded to remove compacted fill. Some grading will be done for more efficient access for vegetation establishment and management. Clean soil from the Reactor Vessel Caisson/Spent Fuel Pool Removal Project may also be beneficially re-used in this area. Soils from excavations elsewhere on site, such as the Trailer City area will be used in this area to fill any large voids and smooth steep contours left by building and foundation removal.

The Discharge Canal is located at the eastern end of Bayview and formerly conveyed the once-through cooling water from Units 1, 2, and 3, that was discharged to Humboldt Bay through outfall pipes leading from the canal under the rock revetment and Shoreline Trail. The Canal Remediation Project is currently underway to remove contaminated sediments in the bottom of the canal as well as bay sands and silts that were washed into the canal through the outfall pipes after Units 1 and 2 ceased operation in 2010 and were no longer discharging cooling water. The Canal Remediation Project also involves removing the outfall pipes that currently connect the canal with the Bay and using the canal as a basin for interim storage of soils excavated during the Reactor Vessel Caisson/Spent Fuel Pool removal decommissioning project.

After decommissioning is complete and the stored soils are removed, the Discharge Canal will be filled with clean soil from other locations on the site, up to 45,000 cubic yards. The fill will be used to build up the area and the surface will be re-contoured as a bluff slope to Bayview Heights and will be replanted to coastal bluff scrub vegetation.

Two small wetland features (0.017 ac and 0.003 ac) under the jurisdiction of both the USACE and the CCC will be impacted by the proposed grading. An additional 0.095 acre of wetlands solely under CCC jurisdiction will also be permanently impacted. These wetlands are maintained in their current state through the input of stormwater from the ISFSI and discharge into the existing stormwater system. Removal of the stormwater system and grading in this area will permanently remove the wetlands. The loss of these wetlands will be mitigated for at a 1:1 ratio by creating 0.12 ac of additional wetland habitat in the Trailer City wetland area (see description of Area 4a below).

In accordance with pending geotechnical recommendations, bank stabilization technologies may be used, as needed, to stabilize slopes steeper than 4:1 (horizontal: vertical). The base of the slope bordering the HBPP Core Area may require special protection. This feature is approximately 364 feet long, ranging in height from 10 to 25 feet and a part of this area has experienced recent failures. To protect the HBPP Core Area from potential impacts, slope limitations or structural improvements, such as a gabion wall structure, may be constructed in this area. Drainage infrastructure and erosion control will also provide required slope protection. The specific stabilization improvement to be used will be determined during detailed design in accordance.

To meet PG&E's preference for native plantings that require low maintenance and provide erosion control and a secure line of sight (less than 1 meter tall) for the ISFSI, planting zones will consist of coastal prairie and coastal bluff scrub ecotypes. Coastal prairie areas could include species such as red fescue (*Festuca rubra*), California brome (*Bromus carinatus*), and California oatgrass (*Danthonia californica*). Coastal bluff scrub areas could include low-growing species such as salal (*Gaultheria shallon*) and swordfern (*Polystichum minitum*). Management of the vegetation in these areas will be done in a way that reduces the re-establishment of non-native species and minimizes vegetation management (i.e., watering, mowing).

For five years following implementation of the FSR Plan, restoration plantings will be monitored and maintained until they achieve the performance requirements established in a planting plan. As part of ongoing operations and maintenance procedures for the ISFSI and HBGS, maintenance activities will be carried out. These may include watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, and weeding in the immediate vicinity of the planted vegetation to reduce competition with non-native plants.

2.1.4.4 Area 4 - Trailer City

Trailer City is a roughly rectangular area located in the east-northeast portion of the property east of the Discharge Canal. It has been used as an area to stage construction trailers during the HBGS construction and subsequently for decommissioning. Currently, the area has been re-paved and is being used for the ground water treatment system, decommissioning laydown, and the tents used for soil management and drying in support of decommissioning.

4a–Trailer City Main—When PG&E proposed to use the Trailer City area for the HBGS construction laydown and construction trailers, the CEC required as part of its licensing process[5] that, after HBGS

[5] As stated earlier, under the Warren-Alquist Act, the CEC has the sole authority in California to regulate power plants greater than 50 MW nominal generating capacity and using a thermal process to generate electricity. CEC site certification of the HBGS for this reason superseded other state and local permitting processes, including the CCC CDP. The CEC, however, depends on the CCC and other state and local agencies to help in determining whether or not a particular power plant under licensing review would comply with applicable laws, ordinances, regulations and standards (LORS) and what conditions a state or local agency would impose on a project but for the CEC's jurisdiction. Once the HBGS was

construction, Trailer City be returned to pre-project conditions, including the replacement of CCC wetlands totaling 1.83 acres and federal jurisdictional wetlands totaling 0.06 acre, (total of 1.89 acres). An additional 0.15 acre of federal jurisdictional wetlands will be created in this area as mitigation for the loss of the wetlands in Bay View Heights (Area 3 above) and for the Alpha Road intersection re-alignment (Area 8c below). Pursuant to CDPs E-07-005 and E-09-010 and the HBGS Surface Restoration Plan approved by the CEC, the CCC assumed jurisdiction of the area allowing PG&E to continue use of the Trailer City for construction laydown and support activities during decommissioning. Restoration of the area is required by the CCC as a requirement of the CDPs.

Additional wetlands will be created in Trailer City, transforming it into the Shoreline Wetland Mitigation Area, a total of 3.61 acres of high quality newly created and engineered wetlands, which will also connect with the Duck Pond wetland area. Wetland acreages beyond those specifically required under previous CDPs serve to mitigate for indirect impacts of site restoration, to compensate for the small widths of the buffers to on-site wetlands that are necessitated by the constrained and industrial nature of the site, and provide benefits to the public.

After the structures and infrastructure are removed, Final Site Survey procedures for the termination of the NRC license require excavation to pre-development (Pre-HBPP) grades. This grading activity will involve moving approximately 30,000 cubic yards of earth. Soil characterization of the area will occur, as described in the License Termination Plan. If the DCGL is exceeded, the soil will be excavated and removed from the site. After the area is tested and cleared, it will be backfilled and the wetland and final grading will be done. The remaining soil will be used to fill the existing Discharge Canal and bluffs to Bayview Heights (Area 3). The Discharge Canal will become part of Bayview Heights.

The Trailer City area will be recontoured as necessary to connect the Duck Pond on the east in a way that will allow for the growth of CCC wetland plants. The shoreline restoration area will be planted with native plant species typically found in CCC wetlands.

The CEC license process (Condition VIS-5) required that PG&E prepare a plan for landscape screening along the northern boundary of the Trailer City area to screen views of the HBGS from the Shoreline Trail and Humboldt Bay. The HBGS VIS-5 plan was approved by the CEC on August 27, 2010. The northern edge of the restoration area along the coastal trail will be planted with trees and shrubs to form screening vegetation per the landscape plan submitted to the CEC and CCC as required by the VIS-5 permit condition. These plant species may include coastal bush lupine, coast silk tassel, shore pine, and Sitka spruce. Some adjustments to the recommended species list (CEC VIS-5) may include red flowering currant, dune willow, twinberry, and wax myrtle. Any changes to the landscape plan would be submitted to the CEC for approval and CCC for review prior to planting.

Restoration plantings will be monitored and maintained until they have met CCC single-parameter wetland performance requirements. Maintenance may include watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, weeding in the immediate vicinity of planted vegetation to reduce competition, and removal of non-native plants throughout the area.

4b–Trailer City Stormwater Detention Basin—A portion of the small drainage canal on the southern edge of Trailer City and areas immediately adjacent to it in Trailer City will be maintained or regraded/excavated to create a stormwater detention basin that will accept stormwater runoff from the Bayview Heights and HBPP Core Area. A maintenance and access road will also be installed around the basin, per RWQCB requirements.

constructed and went into operation, the CCC assumed jurisdiction over the Trailer City area CDP E-07-005 and the HBPP Major Decommissioning CDP (E-09-010).

Water flowing from this basin will be released through an adjustable weir into the adjacent newly created Shoreline Wetland Mitigation Area (see Trailer City Area 4a, above). Native species such as bulrush, spikerush, tule, and sedge will be planted in the basin. The side slopes and uplands will be planted with a seed mix of native grass seed and low lying herbaceous plants and managed to reduce the reestablishment of non-native plant species.

Two concrete surface impoundments with synthetic rubber liners were located within this area and stored hazardous wastes under a DTSC permit from 1977 until 1996. In 1997, the remaining liquid waste and sludge was removed, the liner surface decontaminated, and soil samples were collected from borings located around the perimeter. No residual contamination requiring remediation was identified and DTSC approved the clean closure of the impoundments. The impoundments were subsequently used for accumulation of storm water until the liner and upper portion of sidewalls were removed and the area backfilled to enable the installation of trailers for decommissioning staff pursuant to CDP E-07-005. The area was later used as a laydown area for HBGS construction. The remaining concrete structure and adjacent soils will be removed as part of the FSR plan implementation. Based on the results of the 1997 DTSC clean closure of the impoundments, the concrete rubble/soil removed is not expected to contain hazardous materials; soil sampling will be conducted during the removal to confirm the excavated soil does not contain hazardous materials.

To the west of the location of the former surface impoundments, there is a location with an elevated concentration of lead in soil that is included as a potential soil removal area in the draft FS/RAP. A pre-excavation soil investigation is planned to confirm its presence and to further define the volume of soil to be removed. It is expected that remediation of this area will be performed in conjunction with the FSR implementation of final grading of this area.

As stated above, Trailer City has been identified in the License Termination Plan as an area requiring further soil characterization to determine whether there is any radiological contamination. The radiological soil characterization will also include the Trailer City Open Storage Area. Any soil remediation for chemical and/or radiological contamination would occur prior to the implementation of restoration activities. The FSS will likely occur prior to restoration. However, if it cannot be assured that the area won't potentially be re-contaminated by on-going restoration activities, the FSS may be conducted post-restoration.

Utilities to be removed as part of the installation of the detention basin include the sanitary sewer piping, sewer lift station, water lines (fire and domestic), and communication lines. A 12 kV overhead distribution power line exists along the southern perimeter of the Trailer City area before entering the HBGS. Final configuration of the 12 kV line will be determined as part of final design of the site. The listed utilities to be removed from the Trailer City and Discharge Canal area will be fully excavated and appropriately terminated within the current extent of the HBPP footprint during the restoration effort.

2.1.4.5 Area 5 – Duck Pond

The area to the east of the Trailer City area at the extreme east end of the property is called the Duck Pond and consists of a semi-freshwater or brackish marsh with native vegetation a few feet in elevation above the surrounding tidally influenced salt marsh. Although not tidal, it shows some evidence of saltwater intrusion, including halophytic plants. No changes are planned for this area, other than fence removal, as part of the FSR plan and it will remain a natural area. The new Shoreline Wetland Mitigation Area in Trailer City will be hydraulically connected with this area.

The western/southwestern edge of the Duck Pond will be minimally impacted when the upland boundary is recontoured to connect to the Trailer City restoration area. BMPs including silt fencing and construction at times of low water will minimize impact to the Duck Pond.

2.1.4.6 Area 6 - HBPP Core Area

The HBPP Core Area consists of areas formerly occupied and actively used for HBPP activities, such as the Unit 1, 2, and 3 power island areas, a portion of Trailer City used during HBGS construction and HBPP decommissioning, and the area formerly a fuel oil storage tank now occupied by the Waste Management Building, which was recently constructed as part of the Decommissioning Program. This area is planned for HBGS utility operations use.

6a–HBPP Core Area (Former Units 1, 2, and 3)—The power island area for HBPP Units 1, 2, and 3 was leveled at the time of construction during the 1950s by cutting into the Buhne Point hill and using the resulting fill to raise ground level in the adjacent property to the south (now the location of the HBGS). The area will be flat, open and graveled at the conclusion of the HBPP decommissioning program and will be used for open storage, parking, and other utility uses for the HBGS. The final elevation of this area after decommissioning will partly depend on the extent of soil available from onsite excavations so that overall project site cut and fill are in balance and the project will meet the goal of avoiding soil import or export. This area will be surfaced with a mix of pavement and gravel surfaces.

Portions of the circulating water pipeline that serviced Units 1, 2 and 3 may be removed. This includes portions of the pipeline in the area adjacent to HBGS, and a remaining piece of the Unit 1 Circulating Water Pipeline under Building 5. (Building 5, in subarea 2f, may be demolished in the future). The pipeline debris is not expected to be radiologically or chemically contaminated. However, a Final Site Survey of the area will be conducted as required by the NRC. Stagnant water remaining in the pipeline will likely have putrefied due to decomposed organic matter (e.g., shellfish, etc.). Pipeline debris and any accumulated water will be removed and disposed of properly.

A paved roadway through the graveled area will be added east of the existing HBPP warehouse/ workshop building to provide paved access for large trucks and deliveries to the Waste Management Building (Area 6c). This paved route will provide adequate turning radii and avoid hazards to pedestrian traffic between the HBPP office and warehouse/workshop buildings. This avenue will be a conventional asphalt concrete roadway a maximum of 20 feet wide. Adjacent to this roadway and directly east of the existing warehouse/workshop will be a personnel overflow parking lot and general staging turn-around area for deliveries and rental equipment. This area, excluding the roadway, will cover a maximum of 20,000 square feet and will be covered in aggregate. The proposed improvements of the paved road and general use area encompass approximately a third of the total available HBPP Core Area. The remaining two thirds of the area will be covered in aggregate. Adjacent roadways and regions of pavement will be sloped to allow stormwater to either flow into the aggregate and allowed to infiltrate or flow into one of the proposed detention basins.

The entire HBPP Core Area will be added to the HBGS fenced area and incorporated in the HBGS's CEC license through a petition to amend the license. However, since the area is required by the CCC to be restored and a Final Site Survey conducted for the NRC license termination, the HBGS boundary changes will not be actuated until after the Final Site Survey and site restoration are complete. Through this amendment process, this area will become part of the newly defined HBGS site area and will come under the jurisdiction of the CEC.

6b–Waste Management Building—The area formerly occupied by HBPP LFO Tank #1 covers nearly one acre, is paved, and an open-sided (three-sided) utility building called the Waste Management Building was constructed there to support the Decommissioning Program. The building measures 125 feet by 100 feet (12,500 square feet) and is 27 feet high. The building is used for sorting, sampling, monitoring, loading, weighing, and other processing of waste materials prior to shipping them to an appropriate disposal site. It will continue to be used during site restoration for soil remediation activities tied to the RAP and Final Site Survey. Following site restoration and completion of the soil remediation activities,

HBGS plans to enclose the Waste Management Building for use as a warehouse by constructing the fourth wall and retrofitting the interior to meet their specific needs. In addition, the building will be plumbed for a fire suppression system and a restroom facility. The paving will be retained for open storage. Given the current HBGS site constraints, its warehouse materials are currently being stored off-site. The Waste Management Building was authorized for the HBPP Decommissioning Program under CDP E-9-010. The conversion to warehouse for future use by the HBGS will be permitted under a petition to amend the HBGS CEC license. However, the HBGS boundary change and modifications to the building will not be actuated until after the Final Site Surveys and site restoration are complete.

6c – Frog Pond Stormwater Detention Basin—The area between the Assembly Building, Waste Management Building, and Bravo Road is a basin that collects stormwater runoff from the Waste Management Building, other portions of Buhne Point Hill and Bravo Road. Collected stormwater in this area is currently released with minimal retention from the low point of the basin into the Intake Canal through a 12-inch pipe controlled by a gate valve (currently left open) on the upgradient end and a "duck bill" valve on the downgradient end. At least six inches of sediment has accumulated in the basin, which appears to be saturated year round with no standing water. The lowest portion of the basin is currently dominated by cattail (*Typha*), which has died off recently due to salt water intrusion from the Intake Canal. A small amount of saltgrass (*Distichlis spicata*) and pickleweed (*Salicornia virginica*) have begun to establish. Also located in the basin is an elevated vault containing a sewer lift station. Much of the rest of the basin consists of sloped areas dominated by non-native invasive grasses as well as heather, pampas grass, and a few native wax myrtles.

The ISFSI Entrance Road (Subarea 2c) will be routed through this area and will become the boundary between the Frog Pond and ISFSI storm water detention basins. A culvert under the road will connect the two basins. As stated earlier, construction of the basin and road will be coordinated with the remediation of a small contaminated area in the Frog Pond area that is located in the road right-of-way.

Restoration in this area will involve re-grading and replanting to improve stormwater retention and treatment, improve habitat values and protection, and remove and manage for invasive species. Flows to this basin will be increased by channeling a portion of the HBPP Core Area stormwater runoff in this direction. In addition, flows into the detention basins from paved areas will be retained in the basin to remove large debris and particles. The reconfigured basin will have enough capacity to capture 100 percent of the runoff from the 85th percentile, 24-hour storm, per RWQCB standards.

Retention and treatment will be improved by the planting of vegetation that will include species such as bulrush, spikerush, tule, and sedge. Side slopes and uplands will be planted with a mix of native grass seed and low lying herbaceous plants and will be managed to reduce the reestablishment of non-native species.

Stormwater will flow from this basin to the ISFSI basin through an adjustable height weir. Water captured in this basin will eventually be released into the Buhne Point Preserve via the ISFSI basin outfalls. A culvert connection to the intake canal will be replaced and retained for maintenance purposes so that it is easier to drain the basin for maintenance, and for emergency overflow (for storm events larger than the 25-year storm), per RWQCB requirements.

For most storm events, detained stormwater will be redirected into the Buhne Point Preserve through an adjustable weir structure. The existing gate valve in the Frog Pond will be replaced by an adjustable weir structure that will be designed to only allow flows directly into the Intake Canal during extreme (over 25 year) storm events. The rerouting of storm flows through the preserve will increase freshwater flows into the preserve and mute freshwater flushing into the Intake Canal, which is dominated by salt water species. This will help with the establishment of shellfish larvae in the canal and associated restoration area. Access to the sewer lift station will be improved by filling in around it.

This area will be added to the HBGS fenced area and incorporated in the HBGS's CEC license through a petition to amend the license. However, since the creation of the Frog Pond stormwater detention basin is part of the CCC required HBPP site restoration, the HBGS boundary changes will not be actuated until after site restoration, including the development of the stormwater management system, is complete. Through this amendment process, this area will become part of the newly defined HBGS site area and will come under the jurisdiction of the CEC.

2.1.4.7 Area 7 - Humboldt Bay Generating Station and 60 kV Substation

The HBGS is located at an important nexus of the Humboldt regional electrical grid. Area 7 consists of the current site boundaries of the HBGS, which is the power plant installed to replace the HBPP; the existing 60 kV switchyard (not part of the HBGS), from which power from the HBGS is distributed to the region; and a vegetated swale area to accommodate stormwater run-off from the HBGS site. The HBGS and its transmission equipment is under the jurisdiction of the CEC. The 60 kV substation is not. As discussed throughout this document and as shown on Figure 1-3, the final site boundary for the HBGS will be modified through a petition to amend the HBGS CEC License. The modified boundary will be actuated once restoration is complete.

7a–HBGS Power Plant—The HBGS (licensed as the Humboldt Bay Repowering Project) is a load-following power plant consisting of ten natural gas-fired Wärtsilä 18V50DF reciprocating engine-generator sets and associated equipment with a combined nominal generating capacity of 163 megawatts (MW). The HBGS replaced the HBPP 105 MW gas-fired generating Units 1 and 2 as well as two 15 MW Mobile Emergency Power Plants formerly located at the HBPP site. The HBGS received a CEC license (06-AFC-07C) in 2008 and began operation in 2010. The area within the HBGS fence line comprises 5.4 acres of the overall HBPP site and this area (within HBGS's fence line) is under CEC jurisdiction. Significant changes to the property within this area require a modification or amendment to the facility's CEC license. Such a modification would be required, for example, for PG&E to modify the Waste Management Building (Area 6c) for use as the HBGS's warehouse. As part of this Amendment process, CEC will consult the CCC to determine compliance with the laws ordinances, regulation, and standards (LORS) normally under jurisdiction of the CCC.

7b–Humboldt Bay 60 kV Substation—The Humboldt Bay 60 kV substation adjacent to the HBGS distributes HBGS power to the Humboldt region via five 60kV circuits. In addition, a 12kV distribution circuit from the substation feeds the local distribution grid. The 60 kV substation, however, is outside of the HBGS fence line and is not within the CEC's jurisdiction, which extends from the HBGS switchyard within the HBGS fence line, to the first point of HBGS interconnection in the substation. The HBGS also provides a 115 kV circuit to a 115 kV transmission line from HBGS that bypasses the Humboldt Bay substation.

7c–REST-1—On the west-southwest side of HBGS, to the south of Alpha Road and to the west of the HBGS diesel tank is an area designated as REST-1 that contains a vegetated swale which receives stormwater runoff from HBGS. This subarea also contains a landscape screen that was planted in compliance with a Condition of Certification for the HBGS CEC License. This area is long and narrow and provides a buffer between the HBGS/Alpha Road and the Buhne Slough tidal marsh.

2.1.4.8 Area 8 - Intake Canal Area

The Intake Canal area includes the HBPP Intake Canal, an adjacent access road to HBGS, Alpha Road, and a parking lot located between Alpha Road and the Intake Canal, called the Alpha Road Parking Lot. The Canal Remediation Project will remove contaminated sediment in the eastern end of the Intake Canal. Mitigation of wetland impacts for the Canal Remediation project will take place in the canal and the current location of the Alpha Road Parking Lot.

8a–Intake Canal—The Intake Canal was created as part the construction of HBPP Units 1 and 2 in the early 1950s to convey once-through cooling water to these units (and, later also to Unit 3). Stormwater run-off from the power plant site into the canal resulted in a small quantity of sediments at the upper (east) end of the canal having chemical and radiological contamination. This sediment will be removed as part of the Canal Remediation project (CDP 9-13-0621), which is an element of the HBPP Decommissioning and NRC License Termination Program. After decommissioning, the east end of the Intake Canal will be modified, per the Canal Remediation Project wetland mitigation plan, to create a more productive aquatic ecosystem of saltmarsh, mudflat, reef and eelgrass habitats to compensate for the removal of the Discharge Canal, federal jurisdictional wetlands adjacent to the Discharge Canal, and the temporary dewatering and disturbance of the Intake Canal during the remediation project.

The 105-foot-long by 10-foot-wide steel pedestrian bridge over the Intake Canal connects the Assembly Building area with the western end of the Alpha Road Parking lot. This bridge was installed for HBGS construction as a walkway for workers who parked at the remote parking lot (Contractor Lot #1) traveling on foot to the HBGS. Its use was transferred to HBPP for use during decommissioning once construction of HBGS was complete. Once this bridge is no longer needed for decommissioning program workers crossing the property, the bridge will be removed from its foundations on the top of the Intake Canal banks and made available for beneficial uses elsewhere in the region. The concrete foundations will also be removed.

8b–Alpha Road Parking Lot—The Alpha Road Parking Lot was conceived as a temporary lot for use during construction of the HBGS and was to be returned to pre-construction conditions after HBGS construction was complete. The HBPP Decommissioning Program requested continued use of the parking lot from the CCC due to the congestion on the overall site and the need for parking and the CCC assumed jurisdiction of this area under the master decommissioning CDP (E-09-010). CEC approval of the Condition VIS-2 Surface Restoration Plan allowed for the area to be transferred to the jurisdiction of the CCC. HBGS operations employees also use this parking lot, as it is adjacent to the HBGS. Once the HBPP Decommissioning Program is complete, however, the parking lot will no longer be needed for that purpose and the HBGS operations employees will have the HBPP Core Area available for parking in addition to the parking spaces available at the HBGS itself. The Alpha Road Parking Lot surfacing will be removed and the area will be excavated and conjoined with the Intake Canal to create 1.45 acres of Northern coastal salt marsh, Coastal bluff scrub/Coastal grassland, eelgrass, mudflat, open water, and reef aquatic habitat and 1.9 acres of habitat enhancement as a mitigation measure for the Canal Remediation project as discussed above. The Alpha Road Parking Lot mitigation area extends from the pedestrian bridge to the head of the Intake Canal. Construction of the mitigation area will take place concurrently with the Intake Canal remediation sediment removal (likely in 2018) so that both can be accomplished in a single episode of canal dewatering.

8c–Alpha Road—Alpha Road is a gravel road that connects King Salmon Avenue with the HBGS along the south bank of the Intake Canal and runs on top of the Intake Canal levee. It was installed to provide construction access to the HBGS and was initially proposed as a temporary road. It has been determined, however, that Alpha Road is needed permanently as a heavy haul road because it enters King Salmon Avenue on the US 101 side of the King Salmon Avenue Bridge over the Intake Canal, and this bridge is not rated to accept heavy loads. Heavy haul access from the HBGS will be needed for the 350-ton internal-combustion power plant engines, which could require replacement at some point, and for the transport of a back-up transformer. Heavy haul access from the ISFSI will also be needed for the 80-ton spent fuel/high-level radioactive waste casks. When high-level waste repository is permitted and operating, the NRC will likely require that the casks be moved to the repository. Alpha Road will serve as primary access road for ingress and egress to HBGS. Bravo Road, originally proposed as the

primary access road for HBGS, will serve as a secondary access road, which is important for fire control safety and security.

Minor re-alignment of the Alpha Road intersection with King Salmon Avenue will be necessary to meet Humboldt County safety standards that require a 90-degree intersection angle for permanent roadways. This re-alignment involves a small jog near the intersection and installation of a mechanically-stabilized earth wire wall on the Buhne Slough side so that impacts to adjacent wetland are minimized. There will be permanent impacts to approximately 5 m^2 and temporary impacts to 140 m^2 of wetlands under the jurisdiction of both the CCC and USACE. Permanent impacts to wetlands will be mitigated for at a 1:1 ratio by creating 5 m^2 of additional wetland habitat in the Shoreline (Trailer City) Wetland Mitigation area (Area 4a above).Temporary impacts will be mitigated for by enhancing the existing vegetation in Buhne Point Preserve Fringe (Area 10b below).

Alpha Road will be paved at the existing width, except at the entrance at King Salmon, and the existing HBGS guard shack will be maintained. Alpha Road was installed for the HBGS, and initially came under the CEC's jurisdiction. In their Application for Certification to the CEC, PG&E proposed to restore the road to pre-project conditions when no longer needed for construction. An area next to the HBGS and Alpha Road will be paved for future HBGS parking.

The HBGS VIS-2 Surface Restoration Plan transferred jurisdiction for the road to the CCC for use during decommissioning. The road was then included and approved for use for decommissioning in CDP E-09-010. The paving and continued use of Alpha Road will serve all three of the remaining utility uses, including the substation, HBGS and the ISFSI, when the casks are removed. However, since the predominant user will be HBGS, approval from the CEC for the permanent use of the road is required.

This area will be added to the HBGS fenced area and incorporated in the HBGS's CEC license through a petition to amend the license. However, the HBGS boundary change and the permanent use of Alpha Road, will not be actuated until site restoration is complete. Through this amendment process, Alpha Road will become part of the newly defined HBGS site area and will come under the jurisdiction of the CEC.

8d, e–Alpha Road Overflow Parking—There are two small, leveled and open parking areas along the south side of Alpha Road that will be restored to Coastal bluff scrub vegetation. One of these is part way between King Salmon Avenue and the Alpha Road Parking lot, and one is opposite the parking lot.

2.1.4.9 Area 9 - Assembly Building Area

The Assembly Building Area includes a parking lot, two temporary buildings, several storage containers, a former security kiosk, and Bravo Road from the King Salmon entrance to the current security building near the HBPP core, including the current security parking spaces off of Bravo Road.

9a–Assembly Building Structures—The Assembly Building is a large (80 feet by 28 feet) modular building that is used for training sessions and meetings. It comprises a single meeting room with a small stage at one end and tables and chairs that can be set up in various configurations, depending on the number of people present and the desired meeting format.

The Assembly Building is currently outside of the HBPP/HBGS's high security area so that it can be used for on-site public and agency meetings and not require the higher levels of personal protective equipment (PPE) that are required in the HBPP Core Area. A smaller (42 feet by 12 feet) temporary modular building is located adjacent to the Assembly Building. The former security kiosk (10 feet by 8 feet) is located in a corner of the Assembly Building parking lot and on Bravo Road. This kiosk was formerly the primary entrance security check-in point for the facility.

The Assembly Building, storage containers, and former security kiosk will not be needed by HBGS or ISFSI Support in the future and will be removed, along with associated utilities. The former building footprint will be replaced with gravel.

9b–Assembly Building Parking Lot—The Assembly Building Parking lot will be maintained as a paved and fenced area. Storage containers on its margins will be removed. The ISFSI entrance road (subarea 2c) will be routed along the eastern edge of the parking lot.

9c–Bravo Road and Security Parking Spaces—Bravo Road extends between King Salmon Avenue just north of the Intake Canal Bridge, along the north bank of the Intake Canal to the HBPP Core Area. It was also originally intended to be the primary access road for HBGS. It formerly served as the sole access road to the HBPP. Bravo Road will continue to provide access to the HBPP Core Area and will remain in place as a secondary access road for HBGS. The parking spaces on Bravo Road adjacent to the existing Security Building will also remain, but the Security Building (Building 8) will be demolished. Maintaining Bravo Road as a secondary access point to the property will provide safety and security access redundancy for fire safety, for example. Bravo road will be improved and repaved.

This area will be added to the HBGS to be included within its site boundary and incorporated in the HBGS's CEC License through a petition to amend the License. However, the HBGS boundary change will not be actuated until after site restoration is complete. Through this amendment process, this area will become part of the newly defined HBGS site area and will come under the jurisdiction of the CEC.

2.1.4.10 Area 10 - Buhne Point Wetland Preserve

The Buhne Point Wetland Preserve is an area between the HBPP Core Area/ISFSI and King Salmon Avenue at the west end of the property, consisting of coastal salt marsh and freshwater wetlands. It was established in 2008 to mitigate for impacts to the USACE and CCC wetlands resulting from the construction of HBGS and HBPP decommissioning. A natural area before construction of the HBPP, the wetlands were enhanced by improving tidal flow, removing non-native plants, planting native plants, and other measures. The area was placed under a Deed Restriction and named the Buhne Point Wetland Preserve. The success of this ecosystem restoration project is monitored annually until the success criteria are met.

10a–Buhne Point Wetland Preserve Main—The wetland preserve currently consists of 6.1 acres of wetland and upland habitat. Most of the area has been established for a number of years and is composed of a mosaic of coastal grassland, riparian scrub/forest, saltwater and freshwater marsh. Tidal flow is maintained to the salt water portion of the wetland preserve via an inflow-outflow pipe to the Intake Canal. Restoration plans in other areas will enhance the preserve. For example, three mitigation areas will be created in the Contractor Parking Lot #1 (Area 11) that will become part of the preserve. In addition, the creation of the ISFSI and Frog Pond stormwater basins, which will release water into the Preserve at two locations through adjustable weir structures, will enhance ecological function by supplying a metered source of treated freshwater to the Preserve. Refer to the discussion of these areas for the details.

The inflow-outflow pipe from the intake canal that provides tidal exchange into the Preserve is in poor condition. The up-gradient side of the culvert is partially obstructed with woody debris and there is significant bank erosion at the broken culvert outlet. Without replacement, the culvert would fail and tidal flow to the Preserve would be lost.

This culvert will be replaced and an adjustable weir (and/or tide) control structure will be installed to protect against excessive flooding, manage the balance of fresh and saltwater, and protect and improve the connectivity and ecological function of the Preserve. The culvert will be replaced at low tide with no need for in-water work in the Intake Canal.

10b–Buhne Point Wetland Preserve Fringe—The Buhne Point Preserve Fringe is an area along the southeast margins of the preserve that is not legally or ecologically located within the boundaries of the preserve. It contains upland plant species including grasses and non-native trees and is currently mowed and maintained as a landscaped area. Several of the storage containers that open to the Assembly Building Parking Lot extend into this area. It is not tidally influenced and not a CCC wetland. The wetland preserve boundary also does not extend all the way to King Salmon Avenue because of the existing road easement.

This area will be restored with native plant species to provide continuity of native landscape between the developed area and the adjacent habitats in the Buhne Point Preserve (Subarea 10a) and the Contractor Pedestrian Trail (subarea 10c). The non-native trees in this area (which include Monterey cypress and eucalyptus) will be assessed for habitat suitability. Two to three trees may be limbed and girdled to maintain as wildlife snags. The remainder of the non-native trees will be removed; some with exposed stumps to provide for additional habitat diversity for wildlife as well as insects, and fungi/lichens. All trees removed will be replaced at a 2:1 ratio with native tree species such as dune willow, red alder, shore pine, and Sitka spruce. The area will not be graded, but surface vegetation (non-native grass sod) will be removed and the soil will be tilled and amended as needed to remove as much of the seed bank as possible and create suitable conditions for vegetation installation. The area will be planted with a mix of native trees (see above), shrubs (e.g., coastal bush lupine, coast silk tassel, red flowering currant, twinberry, wax myrtle), and herbaceous species (e.g., soft rush, Pacific aster, clustered field sedge, tufted hair grass, and beach strawberry). The restoration of this area to native plant species will mitigate for temporary and temporal impacts to wetlands that will occur as part of the implementation of the FSR plan.

Restoration plantings will be monitored and maintained until they have achieved performance standards designated in a planting plan to be prepared as part of final design. Maintenance may include watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, weeding in the immediate vicinity of planted vegetation to reduce competition, and removal of non-native plants throughout the area.

10c–Contractor Pedestrian Trail—A gravel-surfaced pedestrian trail was created as a walkway for construction workers going from Contractor Parking Lot #1 to the Assembly Building area and from there across the pedestrian bridge to HBGS or down Bravo Road to HBPP. The trail was a temporary construction appurtenance initially under the CEC's jurisdiction that came under CCC jurisdiction with CDP E-09-010. A requirement of this CDP is to remove the trail and restore the area to natural conditions.

The gravel and underlying geotextile will be removed and graded to remove compacted fill. The area will be recontoured as needed to connect with the ISFSI storm water detention basin and the Buhne Point Wetland Preserve. Following grading, surface soils will be ripped as needed to create suitable conditions for the vegetation installation.

The area will be re-planted to become an extension of areas of adjacent ecotypes including coastal prairie, riparian forest, and freshwater wetlands (ISFSI stormwater basin). Coastal prairie plantings could include species such as red fescue, California brome, and California oatgrass. Riparian forest plantings could include species such as twinberry, dune willow, red alder, wax myrtle, and Sitka spruce. Plantings adjacent to freshwater wetlands could include species such as soft rush, Pacific aster, clustered field sedge, and tufted hair grass. Management of the vegetation in these areas will be conducted in a way that reduces re-establishment of non-native species.

Restoration plantings will be monitored and maintained until they have achieved performance standards designated in a planting plan to be prepared as part of final design. Maintenance may include

watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, weeding in the immediate vicinity of planted vegetation to reduce competition, and removal of non-native plants throughout the area.

2.1.4.11 - Area 11 - Contractor Parking Lot #1

Contractor Parking Lot #1 has historically been a partially graveled parking area. It was improved to provide for construction worker parking, initially, for constructing HBGS and later, for the HBPP Decommissioning Program under CDP E-09-010. The lot measures approximately 200 feet square. Two sections of the Parking Lot known as MIT-1 and Mit-6 are specified as mitigation areas for impacts associated with HBGS construction and the Canal Remediation Project, respectively, and are slated to be converted to freshwater wetlands when no longer needed for the HBPP decommissioning.

MIT-7, constituting the remainder of the contractor parking lot not covered by MIT-1 and MIT-6, is intended to be used to mitigate for the CCC jurisdictional wetlands removed with the construction of Portal Road under CDPE-09-005.

11a–MIT-1—The southeastern portion of the Contractor Parking Lot #1, measuring 0.43 acres, will be allocated for creation of 0.108 acres of federal jurisdictional wetlands and 0.325 acres of CCC wetlands as mitigation for HBGS construction impacts (CDP E-08-003, CEC Condition BIO-12).

11b–MIT-6—A central portion of the Contractor Parking Lot #1 measuring 0.24 acres will be allocated to create 0.14 acres of federal jurisdictional wetlands and 0.1 acres of CCC wetlands as partial mitigation for intake canal remediation impacts (CDP 9-13-0621).

11c–MIT-7—The northern portion of Contractor Parking Lot #1 will be removed and graded to remove compacted fill as mitigation for retaining Charlie Road, as stated above. The area will be recontoured to connect with the adjacent mitigation areas (MIT-6 and MIT-2 in the established Preserve). Following site grading, surface soils will be ripped as needed to create suitable conditions for the vegetation installation.

MIT-7 will be developed at the same time as, and designed to become extensions of, MIT-1 and MIT-6, with a mix of coastal prairie and riparian forest ecotypes. Coastal prairie plantings could include species such as red fescue, California brome, and California oatgrass. Riparian forest plantings could include species such as twinberry, dune willow, red alder, wax myrtle, and Sitka spruce. Management of the vegetation in these areas will be conducted in a way that reduces the re-establishment of non-native plant species.

Restoration plantings will be monitored and maintained until they have achieved performance requirements. Maintenance may include watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, weeding in the immediate vicinity of planted vegetation to reduce competition, and removal of non-native plants throughout the area.

11d–CPL1 Northeast—On the north/west side of the Charlie Road entrance to Contractor Parking Lot 1 is a depressed area leading to a drainage ditch with a mix of native and non-native vegetation. To the south/east of the entrance is a stand of mature Monterey cypress with mowed grass underneath. These areas will be retained as they are, except that the vehicle entrance to the parking lot will be removed and restored as part of the creation of MIT-7.

2.1.4.12 - Area 12 – Buhne Slough Salt Marsh

The large area mostly between Alpha Road/HBGS and the abandoned railroad track that marks the southeastern boundary of PG&E's property is an undeveloped native salt marsh. A tide gate from the Fisherman's Channel west of the King Salmon Avenue Bridge passes tidal water to this area. A small area of

landscaping consisting of shrubs and trees planted for the HBPP forms a strip along Alpha Road and the remainder is native salt marsh. No change to this area is planned as part of the FSR plan.

2.2 Project Construction

2.2.1 Construction Schedule

Following site preparation activities, construction is currently planned to begin in 1nd quarter and conclude in the 4th quarter of 2018 (Table 2-2). Actual construction schedules will be determined by the construction contractor at the time of construction planning and could be different than what is shown in this table.

TABLE 2-2
Construction Schedule, 2018

Construction Activity	Area/Subarea	Start	Finish
Excavate HBPP former settling ponds	4b - Trailer City storm water detention basin	Jan	Mar
Construct Alpha Road wetland	8b - Alpha Road Parking Lot Mitigation Area	Mar	June
Construct Trailer City detention area, Shoreline Wetland Mitigation area	4b - Trailer City detention basin, 4a – Trailer City	Mar	June
Construct parking lot wetland areas	11a-d – Contractor Parking Lot #1	June	July
Construct ISFSI detention basin and ISFSI entrance road	2c – ISFSI entrance road, 2e – ISFSI Support Stormwater Basin	June	July
Construct frog pond detention basin	6c – Frog Pond Stormwater Basin	Mar	June
Recontour ISFSI and Bayview Heights areas	2a – ISFSI, 3 – Bayview Heights	Mar	June
Fill and recontour Discharge Canal	3 – Discharge Canal	Mar	June
Remove Charlie Road	1d– Charlie Road	July	July
Relocate 12kV line along bluff	3 - Bayview Heights	May	Aug
Install underground telecomm lines	Various – see Appendix A	May	Aug
Replace culverts on Bravo Road	9c - Bravo Road	Aug	Aug
Resurface gravel parking area	8c – Alpha Road	June	July
Resurface HBPP Core Area	6b – HBPP Core Area	Sept	Sept
Grade, realign, and pave Alpha Road	8c – Alpha Road	July	Aug
Grade and pave and install concrete gutters along Bravo Road	9c – Bravo Road	Sept	Nov
Grade and pave ISFSI parking area	2d – ISFSI Parking Area	Nov	Nov
Install Fencing and gates	Various – see fencing plan	Dec	Dec
Construct ISFSI truck turnaround area	3 – Bayview Heights	TBD	TBD[6]

2.2.2 Staging, Laydown, and Storage Areas

Staging and laydown areas will be required for implementation of the FSR plan. The most construction intensive areas requiring equipment storage and probable laydown areas are listed in Table 2-3. Actual sequencing of construction will be determined by the construction contractor and the laydown area chosen

[6] Will occur when a public repository for spent fuel has been established.

will be determined at the time of construction planning and could be different than what is shown in this table. For example, Trailer City would not be used as a laydown yard for Bayview Heights construction if construction were to take place at Trailer City first.

Surface improvements to the staging areas, including placement of paving and any necessary BMPs, may be performed to accommodate all-weather use during construction and facilitate surface water management.

TABLE 2-3

HBPP Final Site Restoration Areas Requiring Intensive Construction and Equipment Laydown

Area / Subarea	Construction Activity	Possible Laydown Area
1d – Charlie Road	Removing pavement and gravel, planting	Assembly Room Building Parking Lot, Contractor Lot #1, Contractor Lot #2
2 - ISFSI and ISFSI Support Area		
2b ISFSI Support	Interior remodeling	Contractor Parking Lot #2
2c ISFSI Entrance Road	Fill, Recontour, surface	Assembly Building Parking Lot, HBPP Core
2e ISFSI Stormwater Detention Basin	Excavation, grading, planting	Contractor Parking Lot #1
3 - Bayview Heights	Remove utilities, filling, recontouring, planting	Trailer City, HBPP Core
4 -Trailer City		
4a Trailer City Main	Grading/contouring, planting	HBPP Core
4b TC Stormwater Basin	Excavation, grading, planting	Trailer City, HBPP Core
6 - HBPP Core		
6a HBPP Core Area (Former Units 1, 2, 3 area)	Grading, filling, Paving/surfacing	Trailer City, Bayview
6b Waste Management Building	Modify to HBGS warehouse	Waste Management Building lot, HBPP Core Area
6c Frog Pond Stormwater Detention Basin	Regrading and replanting basin and replacing culvert	HBPP Core, Assembly Building Parking Lot
8 - Intake Canal		
8a Intake Canal	Dewatering, excavation, grading, planting	HBPP Core, Assembly Building Lot
8b Alpha Road Parking Lot	Excavation, grading, planting	HBPP Core, Assembly Building Lot
8c Alpha Road Realignment and paving	Excavation, grading, planting	HBPP Core, Assembly Building Lot
9 - Assembly Building Area		
9a Assembly Building Area Buildings	Removing buildings and resurfacing	Alpha Road Parking Lot, HBPP Core
9b Assembly Building Parking Lot	Surface repair	HBPP Core
10 - Buhne Point Wetland Preserve		
10a Buhne Point Wetland Preserve Main	Replacing culvert and installing tidegate	Assembly Building Parking Lot
10b Buhne Point Wetland Preserve Fringe	Removing storage containers, planting	Assembly Building Parking Lot
10c Contractor Pedestrian Trail	Removing gravel, resurfacing, planting	Assembly Room Building Parking Lot, Contractor Lot #1, Contractor Lot #2
11 - Contractor Parking Lot #1		
11a MIT-1	Grading, contouring, planting	Contractor Parking Lot #2
11b MIT-6	Grading, contouring, planting	Contractor Parking Lot #2
11c MIT-7	Grading, contouring, planting	Contractor Parking Lot #2
11d CPL1 Northeast	Grading, contouring, planting	Contractor Parking Lot #2

2.2.3 Culvert Replacement

Two culverts passing beneath Bravo Road that connect the Intake Canal with adjacent areas will require replacement and some work below the mean high tide line in the jurisdiction of the HBHRCD. The existing culverts were installed upon plant construction, are in disrepair, and need to be replaced and resized. They are:

- Culvert connecting the Frog Pond (6d) detention basin and the Intake Canal. This culvert does not allow tidal water to enter the Frog Pond and is a drainage culvert only
- Culvert connecting the Buhne Point Wetland Preserve and the Intake canal. This culvert allows tidal flow to the preserve and stormwater drainage from it and is therefore a key aspect of managing the ecological function of the preserve

Both culverts are exposed during low tide and so extraction and replacement will be executed within a single tidal cycle. This means that construction will avoid any work within Intake Canal waters. It will also avoid use of sheet piling or other water control structures in the Intake Canal, minimizing potential adverse effects on aquatic biota and eelgrass habitats there.

Construction will take place entirely during an extended low tide event during the dry summer months. Prior to disturbance to the bank of the Intake Canal, a bladder plug (inflatable water containment barrier) will be installed on the Intake Canal end of the culverts to prevent saltwater intrusion. Approximately 75 percent of the length of the culvert will then be excavated and exposed, preserving an undisturbed wedge of original material as a dam separating the Intake Canal from the excavation. Once the low tidal phase begins and the end of a culvert is exposed by the receding Intake Canal waters, a temporary silt fence skirt will be installed along the bank immediately surrounding the exposed culvert to contain soils movement caused by excavation.

The final wedge of material separating the Intake Canal from the trench will be removed at low tide along with the remaining portion of culvert. The bottom of the excavation will then be prepared for installation of the new culvert. As part of complying with applicable NRC regulations having to do with NRC license termination, a brief radiological survey will then be conducted on the culvert trench to ensure that it is free of radiological contamination.

After the radiological survey, a portion of the new culvert will be installed at the desired depth and slope with a bladder plug inserted to prevent saltwater intrusion. Native soils excavated from the edge of the Intake Canal will be used to reconstruct the earthen separation from the Intake Canal and the remaining excavation. Loose disturbed soils will be cleaned from the area within the silt fence and the silt fence will be removed.

Independent of tidal cycles, the remaining trench will be surveyed for radiological contamination and the rest of the culvert will be connected to the previously installed, plugged, portion and back filled with a compactable aggregate type import material for the portion under Bravo Road. Upon completion of installation and compaction the, plug will be removed during a subsequent low tide event and the replaced culvert will become fully operational.

The lowest proposed flow line of either culvert is approximately at the five foot elevation; therefore, the applicable window to execute this work is anytime the tide is below approximately the four foot elevation. National Oceanic and Atmospheric Administration (NOAA) tidal charts for the project area summer months indicate that approximately six hours of construction time will be available with the tidal elevation below four feet. The radiological survey will take approximately two hours. The remaining four hours is sufficient for excavation, replacement, and backfill work of the culvert. Therefore, completing the work within the available low tide window is feasible. Excavation and work executed behind the earthen wedge and plugged culvert could be done independent of tidal cycles with no risk to the waters of the Intake Canal.

2.2.4 Workforce

The proposed project is expected to require a maximum of 150 people onsite daily during construction. Work shifts will generally follow the current HBPP Decommissioning Program standard 10-hour work day, 4 days per week during site preparation, sediment removal, and demolition. Nighttime construction activities are not planned or anticipated; however, in the event that schedule or operational issues necessitate nighttime construction work, PG&E will consult the HBHRCD in advance and any necessary mitigation and additional information submittals will be addressed to ensure that the project will meet the applicable County nighttime noise standards.

2.3 Equipment and Machinery

Construction equipment, vehicles, personnel, and materials will be staged onsite during periods of continuous use. Equipment use will be planned to optimize onsite staging and reduce offsite traffic and travel. Table 2-4 lists some of the types of major construction equipment that may be needed for the proposed project, for illustrative purposes. Actual equipment used may be different than shown depending on selected contractor preferences and inventory. Crew and pickup trucks will access the site daily throughout the construction period.

TABLE 2-4
Typical Major Equipment That May be Used for Site Restoration

Number	Equipment	Horsepower
2	Excavator (CAT365 or equivalent)	270
12	Dump truck (10 cyd)	370
3	Front end loader	160
2	Dozer	200
3	Compactor	170
2	Backhoe	90
1	Flatbed truck	200

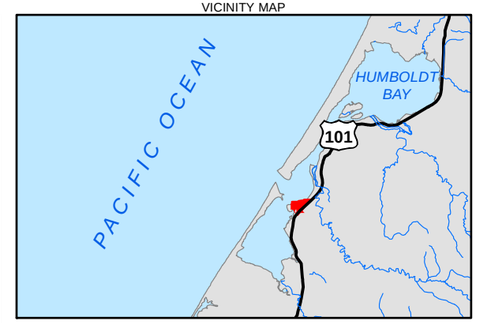
In addition to the major equipment listed, routine equipment will continue to be needed, including waste hauling trucks, forklifts, man lifts, portable generators, air compressors, portable tanks, hand tools, and other supplies and equipment already used to support decommissioning.

2.4 References Cited

CH2M HILL. 2014. Feasibility Study and Remedial Action Plan, Humboldt Bay Power Plant, Eureka, California. Agency Draft. October.

Redwood Community Action Agency. 2001. Humboldt Bay Trail Feasibility Study. Prepared for the California Coastal Conservancy. Eureka, California.

VICINITY MAP



LEGEND

Culverts and Flow Control Structures

Area - AreaID

- 1 - Buhne Point
- 2 - ISFSI and ISFSI Support Areas
- 3 - Bayview Heights
- 4 - Trailer City
- 5 - Duck Pond
- 6 - HBPP Core Area
- 7 - HBGS/60Kv Substation
- 8 - Intake Canal
- 9 - Assembly Building Area
- 10 - Buhne Point Wetland Preserve
- 11 - Contractor Parking Lot #1
- 12 - Buhne Slough Salt Marsh

Subarea ID, Name

1a - Buhne Point Vista
1b - Tsunami Assembly Area
1c - Shoreline Trail
1d - Charlie Road
2a - ISFSI
2b - ISFSI Support
2c - ISFSI Entrance Road
2d - ISFSI Parking Lot
2e - ISFSI Support Stormwater Basin
2f - Warehouse/Office/Workshop/Security
3 - Bayview Heights
4a - Trailer City Proper
4b - Trailer City Stormwater Detention Basin
5 - Duck Pond
6a - HBPP Core Area
6b - Waste Management Building
6c - Frog Pond Stormwater Basin
7a - HBGS
7b - 60 kV Substation
7c - Rest-1 Mitigation Area
8a - Intake Canal
8b - Alpha Road Mitigation Area
8c - Alpha Road
8d - Overflow Parking
8e - Overflow Parking
9a - Assembly Building
9b - Assembly Building Parking Lot
9c - Bravo Road and Security Parking
10a - Buhne Point Wetland Preserve
10b - Buhne Preserve Fringe
10c - Contractor Pedestrian Trail
11a - MIT-1
11b - MIT-6
11c - MIT-7
11d - CLP1 Northeast
12 - Buhne Slough Salt Marsh

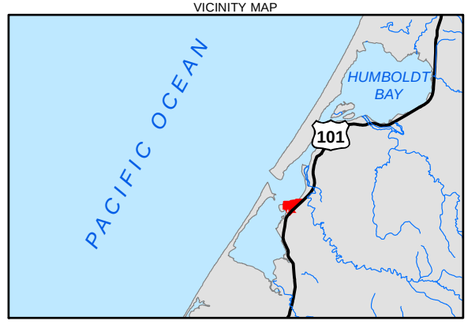
N

0 300 600
FEET

Image Source: PG&E HBPP June 5, 2014

FIGURE 2-1
HBPP Final Site Restoration Areas and Subareas
HBPP Final Site Restoration Plan
PG&E Humboldt Bay Power Plant, Eureka, California

VICINITY MAP



LEGEND

- Flow Control Structure
- Permitted Mitigation Areas
- Future Cask Removal Turnaround
- Gravel / Asphalt
- Roads
- Coastal Bluff Scrub
- Coastal Prairie
- Managed native grasses
- North Coast Riparian Scrub
- Stormwater Basin
- Swale
- Wetland - alkali bulrush
- Wetland - rushes

N

0 200 400
FEET

Image Source: PG&E HBPP June 5, 2014

FIGURE 2-2
HBPP Final Site
Restoration Landscape Design
HBPP Final Site Restoration Plan
PG&E Humboldt Bay Power Plant, Eureka, California

SECTION 3

Coastal Resource Assessment

This section addresses conformance of the proposed project with applicable provisions contained in Chapter 3 of the CCA. Additionally, Section 13096 of the CCC's administrative regulations requires CCC approval of CDP applications to be supported by a finding showing the application, as modified by conditions of approval, is consistent with and addresses applicable requirements of CEQA. Accordingly, this section provides supplemental analysis, as necessary, to evaluate the significance of potential environmental impacts of the proposed project and discusses mitigation for those impacts that are, or have the potential to be, significant as defined by the CCA and CEQA.

3.1 Impact Analysis Approach

The following discussion summarizes the potential impacts of the proposed project compared with existing conditions. The review of potential impacts is divided into the Coastal Resource Planning and Management Policies resource sections, as well as corresponding resource/issue areas identified in Appendix G (commonly referred to as the CEQA checklist) of the CEQA guidelines, as appropriate. Project impacts are evaluated in the context of the stated goals of the individual resource/issues areas identified in the CCA as well as the CEQA checklist.

No impacts on the following resource/issue areas are anticipated and therefore are not evaluated further in this document:

- **Mineral Resources –** There are neither known mineral resources of value to the region nor known locally important mineral resources located on the HBPP project site.
- **Public Utilities –** The proposed project would not result in impacts associated with the performance of fire protection, electrical distribution, water or wastewater, police protection, schools, parks, or other public facilities.

3.2 Project Area Overview

The HBPP site is located on the northern California coast in Humboldt County, approximately 4 miles southwest of Eureka. The City of Eureka, with a population of approximately 26,000, is the largest population center in Humboldt County. The Eureka-Arcata-Fortuna metropolitan area has a population of approximately 135,000. Several small, residential communities are located within 5 miles of HBPP including King Salmon, Humboldt Hill, Fields Landing, and the suburban communities surrounding Eureka. King Salmon is west of the site, adjacent to the site location, and Fields Landing is approximately 0.4 mile south.

Once transfer of the Fisherman's Channel and adjoining property to the HBHRCD is complete, PG&E will own 74.9 acres along the mainland shore of Humboldt Bay and the intertidal areas extending approximately 500 feet into Humboldt Bay from this land area, including the area within Humboldt Bay where the Discharge Canal outfall pipes are located. The plant itself has been in operation since the 1950s and was located inside a chain-link fence designated as the owner-controlled area.

The project area is highly disturbed and industrial in nature and includes paved areas, numerous buildings, outbuildings, and associated industrial facilities required to support the generation of power. The primary existing facilities at HBPP are shown on Figure 1-2. Figure 2-1 shows the various redevelopment/planning areas of the FSR plan.

The HBPP site is located on a small peninsula known as Buhne Point, nominally at 12 feet above mean lower low water (MLLW), and rising to a promontory about 64 feet above sea level. The site is above the surrounding floodplain and wetland areas of Humboldt Bay and lies between the North Coast Railroad

Authority (formerly the Northwestern Pacific Railroad) tracks and the north shoreline of Buhne Point. The HBPP site is not traversed by a public highway or a railroad. The only access to the site is from the south through King Salmon Avenue, which also serves the King Salmon community on the western part of the peninsula. Several boat landings in King Salmon are just west of the entrance gate to the PG&E-controlled area. King Salmon serves frequent commercial and recreational boat traffic. A public access trail runs along the shoreline and along the fence to the northwest of the PG&E-controlled area.

The climate of the greater Humboldt Bay region, including Eureka and the immediate coastal strip where the project site is located, is characterized as Marine West Coast climate. The average annual temperature is 51 degrees Fahrenheit (°F), with the warmest months from July to September and the coldest months from December to February. The rainy season generally falls between November and March, with an average annual rainfall of 38.87 inches over the 11-year measured record at Eureka and a maximum recorded annual rainfall of 67.23 inches. The wind is predominantly from the north to northwest, with a shift to the south to southeast during the winter months.

Several rivers and creeks drain the region around HBPP, including Mad River, which flows west approximately 15 miles northeast of the site, and Eel River, which discharges into the Pacific Ocean approximately 8 miles south of the site. The Elk River discharges to Humboldt Bay about 1 mile northeast of the site. Buhne Slough drains areas adjacent to and south of the HBPP site and runs through PG&E property and south of the HBPP.

3.3 Coastal Resource Policy and Resource Area Review

This section describes the resources protected by the provisions of Chapter 3 of the CCA, the existing conditions of the resource, and an evaluation of potential impacts. For those impacts that are significant or potentially significant, this section describes mitigation and/or avoidance measures.

3.3.1 Public Access

Chapter 3, Article 2 of the CCA ensures that development within the CCC's sphere of influence will not interfere with the public's right of access to the sea, and that access will be provided consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse. The sections of the California Coastal Act pertaining to Public Access are listed below:

- **Section 30211 Development not to interfere with access.** Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.
- **Section 30212 New development projects**. (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated access way shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the access way.
- **Section 30214 Implementation of public access policies; legislative intent.** (a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:
  - Topographic and geologic site characteristics.
  - The capacity of the site to sustain use and at what level of intensity.
  - The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

- The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

3.3.1.1 Existing Setting

HBPP is near the intersection of U.S. Highway 101 (US 101) and King Salmon Avenue. The community of King Salmon is immediately southwest of the project site. Access to the community is shared with the HBPP site from King Salmon Avenue. King Salmon is a waterfront community on King Salmon Avenue, beyond HBPP, and has public and private recreation facilities including a public beach, picnic area, recreational vehicle camp, and boat marina. Land uses surrounding the community and Humboldt Bay, in general, include a mixture of open space, housing, commercial uses, and industry. Built more than 50 years ago, HBPP is a recognizable element within the local coastal landscape setting.

Public access through the HBPP site is prohibited by the NRC for public safety and PG&E's measures to protect the power plant and ancillary facilities. However, coastal access associated with the HBPP property was previously provided pursuant to a CCC condition of approval for PG&E's ISFSI project. Specifically, PG&E established a deed restriction for a public access trail, which extends along the shoreline paralleling the western fence line of the HBPP property boundary. Access to the trail is provided through King Salmon Avenue outside the fenced secure HBPP facility boundary. The CCC condition ensures that the coastal access on PG&E's property will be maintained and that future modifications to the trail will be made to address coastal erosion and sea-level rise. The trail is available for use by walkers, bikers, equestrians, and wheelchair users.

In addition, and as a mitigation measure associated with PG&E's CDP for the HBPP Canal Remediation Project (CDP 9-13-0621), PG&E carried out a construction project to enhance an existing scenic overlook at Buhne Point, an elevated viewpoint with good views up and down the Humboldt Bay. This project involved construction of concrete bench works that replaced previous wooden bench and retaining wall, repair of erosional rills leading up to the viewpoint, and installation of post-and-cable fencing for safety and to prevent additional erosion that would have resulted from continued us of unauthorized trails.

3.3.1.2 Impacts

Although the restoration project constitutes new development, it does not require that additional public access be provided because of compliance with CCA Section 30212(2), "adequate access exists nearby" with the Shoreline Trails and Buhne Point Vista. In addition, the restoration of the HBPP site will not affect public access to these areas. With the exception of the additional wetland creation within the Buhne Point Wetland Preserve (MIT-1, MIT-6, and MIT-7) and replacement of the culverts within the intake canal, the restoration activities associated with the proposed project will be located within the fenced HBPP site, which is not accessible to the public. In addition, the wetland creation activities and culvert restoration will not affect public access to the Shoreline Trail, Buhne Point Vista, or access to the King Salmon community and associated recreational features. Potential impacts related to increased project-induced vehicular traffic are discussed below in Section 3.3.2, Traffic and Transportation.

Construction activities required to re-contour the Bayview Heights and Trailer City areas may require flag-person control of the shoreline trail for short periods of time, as a safety measure. Given that impacts to the shoreline connector trail would be brief, if needed, the impact to this recreational resource is less than significant. Otherwise, the FSR plan implementation will take place entirely on the portions of the HBPP property for which public access is not allowed. This impact is also described in Section 3.3.3, Recreation.

3.3.1.3 Mitigation

Because no significant impacts on coastal access would occur (see Section 3.3.2, Traffic and Transportation, and Section 3.3.3, Recreation, for impacts on traffic and the shoreline trail, respectively), no mitigation is required.

3.3.2 Traffic and Transportation

Although vehicle traffic is not specifically covered in the CCA, a traffic and transportation analysis is included. At times during the implementation of the project, heavy traffic volumes would occur from construction vehicles (abatement, demolition, and disposal traffic) entering and exiting the site.

3.3.2.1 Existing Setting

HBPP is located in unincorporated Humboldt County, approximately 4 miles south of Eureka. The project site is accessible via King Salmon Avenue, which intersects with US 101. Construction traffic for the proposed project would use the same entry and exit routes that site workers currently use, and no new access routes would be required.

According to the Humboldt County Public Works Department, King Salmon Avenue carried approximately 2,355 vehicles per day in June 1973. More recent counts in 2009 by Humboldt County have shown a range of 1,339 to 1,782 average daily traffic. Only total daily traffic counts were measured during county surveys; therefore, truck traffic and peak-hour volume data are not available for King Salmon Avenue (CH2M HILL, 2006).

Traffic volumes assessed in the 2009 CRA were expected to peak in January 2010 with approximately 300 workers onsite, including an estimated 226 workers for HBGS construction and estimated peaks of 40 workers for Units 1 and 2 demolition and 35 workers for Unit 3 demolition. For later phases of decommissioning, such as the reactor vessel caisson removal, daily traffic may peak at approximately 30 trips per day for haul trucks removing excavated materials. The FSR plan implementation will take place after this work is completed and will involve a maximum of 150 per day on the project site, in addition to daily traffic of approximately 50 persons, evenly divided between ISFSI Support and HBGS personnel, for a total of 200 persons arriving on the site per day.

Traffic volumes are expected to remain dominated by worker commute traffic to and from the site each day. As noted in Section 2, the workforce for the proposed project is not expected to exceed prior project staffing levels.

3.3.2.2 Impacts

Potentially significant impacts on traffic would occur if vehicle congestion from the project site, or cumulative impacts from multiple project sites within the vicinity, cause traffic backup onto King Salmon Avenue. King Salmon Avenue is not a heavily used road, but it is the only access route to the King Salmon community, southwest of HBPP. Potential traffic impacts would primarily result from staff traveling to and from the site. However, the maximum number of onsite staff during implementation of the proposed project would not cause staffing levels to exceed 200 persons per day for the duration of the FSR plan implementation. During the previous period of decommissioning and HBGS construction when staffing levels reached up to 500 persons, there were no reported issues with traffic backing up onto King Salmon Avenue. This estimate includes staff associated with operations of the HBGS. Because daily traffic estimates for the FSR plan implementation would be significantly lower than those previously experienced at the project site, potential impacts would not significantly alter the current level of service to existing roads within the project area.

The proposed project would include the removal of up to approximately 2,000 yd^3 of concrete waste, and 230 yd^3 of metal waste (removal of existing foundations and piping, etc.). Table 3-1 shows the estimated

number of total truck trips and associated timeline for activities that require offsite disposal of excavation materials.

TABLE 3-1
Estimated Truck Trips

Excavated Material Source/Type	Amount (yd^3)	Estimated Total Truck Trips
Concrete Waste	2,500	250
Metal and other Waste	235	25

Similar to the prior decommissioning construction activities, project-related hauling would be spread throughout the day, rather than in concentrated caravans. Although the additional traffic from the proposed project may be noticeable to local residents, the additional traffic would not significantly reduce the level of service to surrounding roadways; thus, traffic-related impacts would not be significant.

3.3.2.3 Mitigation

For the proposed project, the contractor would develop and implement a traffic control plan to mitigate traffic-related impacts, similar to what was required for various phases of decommissioning. To minimize the impacts of staff traveling to and from the site, carpooling would be encouraged, which would further reduce the total number of daily commutes to the project site.

Moreover, no new parking would be constructed at the site to support the proposed project. If parking is at capacity, workers would use a previously authorized offsite parking location, and workers would be bussed onsite. Currently available parking is projected to be adequate to support the proposed project. Although the FSR plan implementation involves changing some current parking areas to non-parking uses (Alpha Road parking lot and Contractor Lot #1), new parking areas will be available in the HBPP Core Area and existing parking at the Assembly Building will remain. With appropriate work staging, adequate parking will be available.

3.3.3 Recreation

Article 3, Chapter 3 of the CCA, establishes the protection and preservation of oceanfront land that is suitable for recreational uses. Specifically, Section 30221 of the CCA states:

> Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

The project area has been developed for coastal-dependent industrial use for over 50 years. However, recreational opportunities exist near and adjacent to the project site. Nevertheless, potential impacts on recreation are addressed below.

3.3.3.1 Existing Setting

Recreational opportunities within Humboldt Bay are numerous and include boating, fishing, camping, and bird watching. The following designated recreational areas are located in Humboldt Bay, within a 3-mile radius of the project site: Samoa Dunes Recreation Area, South Spit, Fields Landing County Park, Humboldt Bay National Wildlife Refuge, and Elk River Wildlife Area (Figure 3-1).

The Samoa Dunes Recreation Area is located northwest of the project site, at an approximate distance of 2 miles. The Samoa Dunes Recreation Area is a 300-acre park, managed by the Bureau of Land Management

(BLM) as a multiple-use recreation site. Recreational activities on this site include hiking, surfing, fishing, sightseeing, beachcombing, off-highway vehicle use, picnicking, and bird watching.

The South Spit is located directly across the bay from the project site at an approximate distance of 1 mile. The South Spit is a relatively undeveloped and remote recreation area managed by the CDFW and BLM. Uses include hiking, bird watching, and, in November, hunting migrating Pacific Brandt, as well as other waterfowl species.

Fields Landing County Park is located approximately 1 mile south of King Salmon Avenue and provides fishing and public boat docks.

Humboldt Bay National Wildlife Refuge (NWR) is located at the southernmost portion of the Humboldt Bay and is managed by the USFWS. The Humboldt Bay NWR is being managed to protect and enhance wetlands and bay habitats for migratory birds and to protect endangered species and their habitat. Recreational activities include hiking, biking, bird watching, hunting, boating, and fishing.

The Elk River Wildlife Area is located northeast of the project area approximately 3 miles. The 104-acre wildlife area consists of coastal salt marsh and riparian wetlands. The wildlife area is managed by CDFG, and its primary recreational opportunities include fishing, bird watching, and wildlife viewing.

The community of King Salmon, located south of the HBPP on King Salmon Avenue, is surrounded by the waters and beaches of the Humboldt Bay. Boat docks and waterways leading to the bay are located between most streets and take the place of backyards for a large percentage of the residences. A public beach is located to the west of King Salmon Avenue beyond Buhne Point, south of the HBPP. The Elk River Wildlife Area is approximately 2,000 feet to the northeast of the HBPP site. Several recreational parks are in the City of Eureka, which is greater than 1 mile north of the site.

The Shoreline Trail maintained by PG&E runs along the shoreline on the perimeter of the HBPP property to the northwest. The shoreline trailhead lies just off King Salmon Avenue, where it bends becoming Buhne Drive. This portion of the trail extends from the King Salmon community south to the wetlands along the bay. From the north, the trail parallels the railroad right-of-way. This trail represents part of a planned coastal trail system that will eventually extend from Oregon to Mexico (California Coastal Conservancy, 2003).

In 2014, as part of the CDP for the Intake and Discharge Canal Remediation project, PG&E provided improvements to the Buhne Point Vista, which overlooks Humboldt Bay. The improvements included replacing a wooden bench and retaining wall, adding a safety barrier along the edge of the vista, and repairing the trail leading to the Vista. PG&E will maintain the Vista and segment of the Shoreline Trail adjacent to the PG&E property.

3.3.3.2 Impacts

Construction activity required to implement the FSR plan would not affect recreational activities or opportunities except for the possible need for flag-person control of the shoreline trail for brief periods of time during recontouring of the Bayview Heights area, for public safety. However, the trail would remain open during this activity. Given that impacts to the shoreline connector trail would be brief, if needed, the impact to this recreational resource is less than significant. Otherwise, the FSR plan implementation will take place entirely on the portions of the HBPP property for which public access is not allowed.

3.3.3.3 Mitigation

Currently, no mitigation has been identified for temporary flag-person control of the Shoreline Trail.

3.3.4 Marine Environment

Article 4, Chapter 3 of the CCA provides for the protection of the marine environment, specifically the protection of marine resources, biological productivity, water quality, wetlands. The applicable sections of the CCA included in Article 4, Chapter 3 are as follows:

- **Section 30230 Marine resources; maintenance.** 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 Biological productivity; water quality.** 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 Oil and hazardous substance spills.** 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 30233 Diking, filling or dredging; continued movement of sediment and nutrients.**(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

  …

  (6) Restoration purposes.

  …

  (c) … diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game… shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

Consistency with CCA Sections 30230, 30231, and 30233 are in Section 3.3.5, Biological and Wetland Resources and Section 3.3.7 Hydrology/Water Quality. Consistency with CCA Section 30232 is addressed in Section 3.3.6, Hazardous Materials.

3.3.4.1 Existing Setting

HBPP is on the southeast shore of Humboldt Bay, directly in line with the inlet from the Pacific Ocean to the bay. Humboldt Bay is a large, shallow body of water with deep channels separated from the ocean by two long, narrow spits. The tidal bay receives and discharges ocean water through its inlet. The bay is approximately 14 miles long and ranges in width from 0.5 mile in the middle to more than 2 miles at the south end and 4 miles at the north end. The average depth is 12 feet relative to MLLW. Tidal influences in the bay are moderate, ranging between 4.3 and 7.0 feet throughout. Because of the bay's shallow depth, water quality conditions in the ocean have large influence on water quality in the bay itself.

The HBPP site is near several ports that support commercial and sport fishing activities and a public trail to access a breakwater for recreational fishing. Among the fish harvested are California halibut, rockfish, and salmon, along with crabs, oysters, and clams. Visitors are attracted to the area by the numerous state and county parks along the coast and in the inland forests. In addition to the small beach on the western side of the Buhne Point peninsula, public beaches along Humboldt Bay and the Pacific Ocean coast are popular with local residents and tourists. Much of the coastal area on the inside of the bay falls within the boundaries of the Humboldt Bay NWR, which is within 5 miles of the HBPP site.

The intake canal is hydraulically connected to Humboldt Bay through Fisherman's Channel (also known as King Salmon Slough). Cooling water previously flowed through the existing power plant's once-through condensers and was discharged into Humboldt Bay through the cooling water discharge canal and four culverts connecting the discharge canal with Humboldt Bay. At the time of the FSR plan implementation, the outfall pipes will have been removed.

3.3.4.2 Impacts

Article 4, Chapter 3 of the CCA provides for the protection of the marine environment, specifically the protection of marine resources, biological productivity, economic and commercial boating, fishing and recreational opportunities, and water supply and flood control.

Section 3.3.5, Biological and Wetland Resources, discusses the potential impacts the proposed project would have on biological productivity, as described in Sections 30230, 30231, and 30233 of the CCA. Section 3.3.7, Hydrology/Water Quality, discusses the hydrological relationship with HBPP and Humboldt Bay as well as discharge of water from the GWTS, in accordance with Sections 30230, 30231, 30232, and 30233 of the CCA.

The only FSR plan implementation activities that has the potential to affect marine resources are the replacement of two culverts to the Intake Canal and removal of the pedestrian bridge foundations. One of the culverts is a tidal connection between the canal and the Buhne Point Wetland Preserve. The other culvert connects the Frog Pond with the canal. Impacts to canal marine resources will be avoided by conducting the culvert replacement at low tide in a single day so that in-water work is avoided and by implementing standard BMPs to control erosion and sedimentation. This is discussed further in the Biological and Wetland Resources (Section 3.3.5) and Hydrology/Water Quality (Section 3.3.7) sections. The construction methods are discussed in greater detail in Section 2.2.3.

The pedestrian bridge will be removed by crane from shore, as will the foundations. Appropriate BMPs such as silt curtains will be installed around the foundations to protect the Intake Canal from impacts to water quality.

3.3.5 Biological and Wetland Resources

As referenced in Sections 30230, 30231 and 30233 of the CCA, this section addresses minimizing adverse effects to areas and species of special biological significance and maintaining biological productivity of coastal waters, streams, wetlands, estuaries, and lakes as appropriate.

3.3.5.1 Existing Setting

The HBPP site is primarily an active industrial site with managed landscaped areas surrounded by natural habitats including North Coast coniferous forest, North Coast riparian scrub, coastal bluff scrub, coastal brackish marsh, Northern Coastal salt marsh, coastal prairie, non-native perennial grassland, and mudflat, estuary habitat, and open water habitat present in the Fisherman's Channel, Intake Canal, and Humboldt Bay (Stillwater Sciences 2013 and 2014). The Buhne Point Wetlands Preserve, located on the southwest side of the site, is a restored natural habitat that was created to mitigate for impacts on wetlands from the creation of HBGS and several HBPP decommissioning projects.

Some drainage channels and water-collecting surfaces including the Intake Canal meet the criteria as CCC and/or USACE jurisdictional wetlands. The Intake Canal also meets the criteria as a USACE Waters of the United States. Approximately 1.38 acres of seasonal wetlands under USACE and CCC jurisdiction and 0.24 acre of wetlands solely under CCC jurisdictional wetlands are in areas of likely ground disturbance during the FSR plan implementation. Eelgrass is present in the Intake Canal, but will not be affected by the Proposed Project.

A desktop literature review was conducted for known occurrences of sensitive natural communities, critical habitat, and special-status plant and wildlife species within the following eight U.S. Geological Survey (USGS) quadrangles that surround the project: Fields Landing (main), Cannibal Island, Eureka, Arcata South, McWhinney Creek, Ferndale, Fortuna, and Hydesville. The results of special-status wildlife and plant species queries were combined into a single preliminary list that included those species that have been documented or have the potential to occur within the project area. The list of species potentially occurring in the project area is included in Appendix B. All special-status plants that occur in the elevation range and habitat conditions found in the project area have a low likelihood of occurrence within the project area except Humboldt Bay owl's-clover (*Castilleja ambigua* ssp*. humboldtiensis*) and Point Reyes bird's-beak (*Chloropyron maritimum* ssp*. palustre*), which have a moderate likelihood of occurrence due to the presence of nearby known populations.

In addition, eelgrass (*Zostera marina*) is present in the Intake Canal. Eelgrass habitat has been identified as a “Habitat Area of Particular Concern” as a subset of Essential Fish Habitat pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. This designation is due to eelgrass’ importance as a nursery area for groundfish species. Eelgrass has also been identified by the CCC as a “species of special biological significance,” and therefore requires special protection pursuant to the CCA (HBHRCD 2006). Eelgrass provides a variety of essential ecosystem functions, including primary production, predation refuge, nursery functions, physical structure, and nutrient cycling.

The following special-status animal species have potential to occur in the project area: North American green sturgeon – (Southern Distinct Population Segment [DPS]) (*Acipenser medirostris*), longfin smelt (*Spirnichus thaleichthys*), coho salmon (southern Oregon/ northern California Evolutionary Significant Unit [ESU]) (*Oncorhynchus kisutch*), steelhead (Northern California DPS) (*Oncorhynchus mykiss*), Chinook salmon (California coastal ESU) (*Oncorhynchus tshawytscha*), northern red-legged frog (*Rana aurora*), marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), western snowy plover (*Charadrius alexandrinus nivosus*), tricolored blackbird (*Agelaius tricolor*), Townsend's big-eared bat (*Corynorhinus townsendii*), and pallid bat (*Antrozous pallidus*).

No adverse impacts to listed species would occur as a result of implementation of the FSR plan.

3.3.5.2 Impacts

Wetlands and Waters

Table 3-2 shows the acreages of federal jurisdictional waters and federal and CCC wetlands that may be affected by implementation of the FSR plan. Appendix C is the Biological Resources Mitigation Plan and Appendix D contains a wetland delineation report for the site.

TABLE 3-2
Surface Water and Wetland Areas Potentially Impacted

Area	Water/Wetland	USACE and CCC wetlands (acres)	CCC Wetlands	Estimated Duration of Impact
3	Bayview Heights	0.020	0.095	Permanent
5	Duck pond	0.25	-	Temporary (4 months)
6d	Frog Pond Stormwater Detention Basin	0.296	-	Permanent and Temporary (4 months)
8a	Intake Canal surface water	0.008	-	Temporary (1 day)
8c	Buhne Slough for Alpha Road intersection realignment	0.035	-	Permanent and Temporary (1 month)
10a	Buhne Point Wetland Preserve – near lower contractor lot	0.023	0.04	Temporary (2 months)
10a	Buhne Point Wetland Preserve – for Intake Canal culvert replacement	0.004	-	Temporary (1 day)
	Totals	0.64	0.14	0.63 acre temporary, 0.15 acre permanent

Alpha Road Parking Lot Mitigation Area (separate permit). A portion of the Intake Canal will be impacted when the Alpha Road Parking Lot Mitigation Area (subarea 8b) is created. This action was permitted as part of the Canal Remediation Project (HBHRCD Permit 13-04, CDP 9-13-0621, and USACE Individual Permit 2013-00329N).

Bayview Heights. The southern-facing sloped area of Bayview Heights (Area 3) will be graded, stabilized, and revegetated with upland vegetation, permanently removing 0.115 acre of isolated wetlands.

Buhne Point Wetland Preserve. During the creation of the proposed wetlands in the Contraction Parking Lot #1 (subareas 11a, b, c) adjacent to the Buhne Point Wetland Preserve (subarea 10a), temporary impacts on the existing wetland/drainage ditch along King Salmon Avenue may occur.

Discharge Canal (separate permit). After the HBPP decommissioning is complete and the stored soils are removed, the Discharge Canal will be filled with clean soil, which will extend the slope of Bayview Heights. The remediation of the Discharge Canal was permitted as part of the Canal Remediation Project (HBHRCD Permit 13-04, CDP 9-13-0621, and USACE Individual Permit 2013-00329N).

Duck Pond. The creation of a new wetlands/swale complex in Trailer City (Shoreline Wetland Mitigation Area) (subarea 4a) will connect to the existing Duck Pond (Area 5), potentially causing temporary effects from construction activities on a small portion of the existing wetlands. This will improve hydrological connectivity and wetland habitat overall, however.

Frog Pond Stormwater Basin and ISFSI Entrance Road Creation.The re-grading and vegetation removal in the Frog Pond Stormwater Detention Basin (subarea 6c) as well as the replacement of the basin drain culvert and soil remediation and also the construction of the ISFSI entrance road will cause temporary and permanent impacts on wetlands. A portion of the existing wetlands that surround the sewer lift station will be permanently impacted during the upgrades to the lift station.

Intake Canal Culvert Replacement and Pedestrian Bridge Removal. There is a potential for temporary impacts on wetlands in the Buhne Point Wetlands Preserve (subarea 10a), the Frog Pond Stormwater Basin

(subarea 6c), and the Intake Canal (subarea 8a) from construction activities associated with the replacement of two culverts under Bravo Road and the removal of the pedestrian bridge over the Intake Canal.

Alpha Road Realignment. There will temporary and permanent impacts to wetlands from construction activities associated with the realignment of Alpha Road.

Plants

Humboldt Bay owl's-clover and Point Reyes bird's-beak are the two rare plants with a moderate potential to occur within wetland and marsh locations within the project area. Grading activities that are proposed within the Frog Pond, Bayview Heights, and Intake Canal areas have the potential to affect these species. Impacts on eelgrass that is located in the Intake Canal will be avoided.

Fish

With the exception of longfin smelt, all special-status species have a low potential to occur within the Intake Canal. Project activities that may affect special-status fish species are very limited in area and scope and involve replacement of two culverts (Frog Pond and Buhne Point Wetlands Preserve culverts) that drain into the Intake Canal.

Amphibians

A variety of construction-related activities have the potential to affect amphibian species, particularly northern red-legged frogs. These include routing stormwater from ISFSI Support Stormwater Detention Basin (subarea 2e) into the Buhne Point Wetland Preserve (subarea 10a); filling and contouring the discharge canal (Area 3); excavating and grading near the Duck Pond (area 5); re-grading of the Frog Pond (subarea 6c) and work along Buhne Slough during the Alpha Road realignment. Northern red-legged frogs have the potential to be in all of these locations.

Reptiles

The project would not affect special-status reptile species, as their presence is unlikely due to lack of suitable habitat.

Birds

Given that most of the activities proposed for this project involve work in previously developed areas, there is limited potential to affect special-status bird species. However, if night-time construction were to occur, lighting could alter migration behavior of marbled murrelets. In addition, construction-related noise may affect nesting activity of birds covered under the Migratory Bird Treaty Act (MBTA) in locations near work areas. Removal of vegetation and trees may also impact nesting birds.

Mammals

Townsend’s big-eared bat and pallid bat are the only special-status mammal species that potentially occur in the project area. These species have been known to roost in man-made structures that experience limited disturbance. The structures that are currently slated for removal as part of project are subject to an ongoing high level of human activity ranging from pedestrian traffic to heavy equipment operations. Consequently, it is highly unlikely that these species roost in any of the structures planned for removal. However, it is possible that individuals of these species may roost in tree cavities on the HBPP property. The project proposes the removal of several non-native Monterey cypress and Monterey pine trees. If these trees have cavities, then impacts on bat species could occur.

3.3.5.3 Mitigation Measures

Wetlands and Waters

Alpha Road Parking Lot Mitigation Area (subarea 8b). The creation of this wetland area is a mitigation measure for the Canal Remediation Project (a separate project permitted under a separate CDP) – there are no additional mitigation measures proposed for this area. The mitigation area will be constructed while the area is de-watered as part of the Canal Remediation Project.

Alpha Road (subarea 8c). Implementation of construction BMPs will reduce impacts to adjacent habitats during paving. Paving this road will reduce fine sediment delivery to the adjacent wetlands of Alpha Road including the Intake Canal (subarea 8a), the Buhne Slough Salt Marsh (Area 12), and the Alpha Road Parking Mitigation Area (subarea 8b). Upon completion, the overall integrity and health of the adjacent wetland areas will benefit. Permanent impacts to wetlands associated with the realignment of Alpha Road will be mitigated for by constructing wetlands in the Trailer City area. Temporary impacts to wetlands will be mitigated for by restoring the Buhne Point Preserve Fringe area and Shoreline Wetland Mitigation area in Trailer City.

Intake Canal Culvert Replacement and Pedestrian Bridge Removal (subarea 8a). These activities will be conducted in a manner that would avoid impacts on the waters of the Intake Canal and would not require sheet piling or other water control structures. Work will be done during periods of low tide and during the dry season to minimize impacts and mitigation measures will be employed to minimize impact on wetlands in accordance with BMPs described in the Biological Resources Mitigation Plan (Appendix C) and SWPPP. In-water work will be avoided, resulting in no impacts to the marine environment, in compliance with CCA Section 30230. Details of the culvert removal construction methods are found in Section 2.2.3.

Frog Pond Stormwater Basin Creation (subarea 6c). Since the existing vegetation within the Frog Pond Stormwater Detention Basin is primarily nonnative invasive, the proposed restoration to native hydrophytic plants will be conducive to the stormwater basin function and wetland habitat suitability. In addition, the area will be expanded and will result in a larger wetland complex, helping to manage stormwater. This expansion of the existing wetland will mitigate for permanent impacts to wetlands associated with the construction of the ISFSI Entrance Road and upgrades to the sewer lift station. To the extent possible, work will be done during periods of low tide and during the dry season to minimize impacts, and mitigation measures will be employed to minimize impacts on wetlands in accordance with BMPs described in the Biological Resources Mitigation Plan (Appendix C) and SWPPP.

Duck Pond (Area 5). Upon completion of the small amount of work that will take place in this area to connect it with the Trailer City wetland (subarea 4a), the overall integrity and health of the combined wetland complex will be improved. To the extent possible, work will be done during the dry season to minimize impacts, and mitigation measures will be employed to minimize impacts on wetlands in accordance with BMPs described in the Biological Resources Mitigation Plan (Appendix C) and SWPPP.

Bayview Heights (Area 3). The restored native vegetation in this area will provide slope stability and enhanced quality habitat. The loss of 0.115 acre of wetlands will be mitigated for at a 1:1 ratio in the Trailer City (Shoreline) wetland restoration area (subarea 4a). A second wetland located adjacent to the ISFSI will be avoided during construction, but will be restored by removing invasive plants and will be incorporated into the adjacent restored areas by removing protective fencing.

Buhne Point Wetland Preserve (subarea 10a). Temporary impacts on wetlands in these areas will be minimized to the extent practicable in accordance with BMPs described in the Biological Resources Mitigation Plan (Appendix C) and SWPPP. Upon completion, the small wetland will become part of a larger wetland complex and the overall integrity and health of the wetland/drainage ditch will be improved. In addition, removing the gravel contractor parking lot and restoring the area to wetlands will reduce the amount of fine sediment delivery to the wetland.

Charlie Road Wetlands. CCC wetlands of 0.244 acre were impacted when Charlie Road was constructed. These wetlands will be restored when the project is completed and the road removed per CDPs E-08-003 and E-08-003-A1.

Plants

Protocol-level special-status plant surveys will be performed during the appropriate blooming times to identify whether any special-status plants are present in the project area as well as to evaluate any potential effects on known occurrences. If special-status plant species are documented in the project area and cannot be avoided, it is recommended the plants be relocated to comparable habitat in the Buhne Point Wetlands Preserve or another suitable location on-site in coordination with appropriate agencies.

Fish

Culvert replacement activities in the Intake Canal will occur only during low tide when the culverts are out of the water. In-water work will be avoided. Therefore, impacts on special-status fish species will be avoided.

Amphibians

A frog rescue and relocation mitigation measure will be implemented during the periods when operations are occurring in areas where northern red-legged frogs would likely be present. Also, the addition of flow from the ISFI Stormwater Detention Basin (subarea 2e) into the Buhne Point Wetland Preserve (subarea 10a) will expand red-legged frog breeding and rearing habitat. The creation of new wetland habitat in Trailer City (subarea 4a) will also expand this species' habitat. The Frog Pond (subarea 6d) will also contain higher quality habitat following re-grading and revegetation activities than the current condition.

Reptiles

The project would not affect special-status reptile species since their presence is unlikely due to lack of suitable habitat. However, the HBPP currently has on-call staff available to capture and relocate animals on an as-needed basis. It is expected that this on-call staffing will continue to operate in the same fashion as in the pre-project condition. Staff will be available to rescue and relocate any reptile species, as necessary.

Birds

The project does not proposed to use night-time work, but if this became necessary, any lighting that could possibly be installed would be directed downward and away from off-site areas. Where practicable, tree and vegetation removal will be conducted outside the bird nesting season. The HBPP is an active industrial site and is already well-lit. Any marbled murrelets that fly over the site are expected to be already habituated to the existing lighting.

Project activities will not remove any nesting or foraging habitat for special-status bird species. Pre-construction nesting surveys will be conducted by a qualified wildlife biologist during the bird nesting season (February 15 to August 31) within 15 days prior to the start of ground-disturbing construction activities that includes the removal of any vegetation and for work adjacent to nesting habitat. If a nest is identified, PG&E would consult with appropriate resources agencies (CDFW and/or USFWS) to identify proper avoidance and minimization measures.

The project will increase the amount of grassland and coastal scrub habitat available for tricolored blackbirds.

Mammals

Due to the high level of disturbance, it is highly unlikely that bat species roost in any of the structures planned for removal. However, it is possible that individuals may roost in tree cavities on the HBPP property. Therefore, a survey for cavities suitable for bat roosting will be conducted of any tree slated for removal as part of the proposed project. If such a cavity is identified, an assessment of bat use will be

initiated by a qualified wildlife biologist. If the cavity shows bat habitation, then the tree and a screen of trees immediately surrounding it, if present, will be retained.

Coastal Act Consistency

The mitigation measures proposed ensure consistency with CCA sections 30230, 30231, and 30233. There will be no impact to marine resources since work in the intake canal will be done during periods of low time and during the dry season. The BMPs specified in the Biological Resources Mitigation Plan and SWPPP will help ensure consistency with CCA Section 30231 by protecting biological productivity and water quality. Lastly, CCA Section 30233 permits the filling of wetlands for restoration purposes when there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects. In addition, work in wetlands shall maintain or enhance the functional capacity of the wetlands. The impacts to and within wetlands specified above will be due to HBPP restoration efforts. Feasible mitigation measures have been proposed to address wetland impacts.

3.3.6 Hazardous Materials

Section 30232 of the CCA requires that the protection against the spillage of crude oil, gas, petroleum products, or hazardous substances will be provided in relation to any development or transportation of such materials. The end result of the proposed project is that all hazardous materials currently on the site would be removed, thus significantly reducing the potential for hazardous materials impacts on coastal resources over the long term. However, project activities would involve handling and transportation of hazardous materials. This section addresses the potential impacts from handling, temporary storage, and transporting hazardous materials.

The project area is currently an active demolition site. At typical construction sites, onsite materials that could be considered hazardous include fuels, motor oil, grease, lubricants, solvents, soldering equipment, and glues. Refueling would be required daily for most of the heavy equipment.

3.3.6.1 Contaminated Waste

Radiologically contaminated waste (radcon or radwaste) is a term used for any product (liquid, gas, pipes, valves, or other materials) that has been exposed to radiation and, therefore, may have been contaminated in such a manner that they may be radioactive and, therefore, may release potentially damaging radiation or otherwise expose the environment to radioactivity. The objectives of the decommissioning process are the removal of all radioactive material from the site that will restrict its future use and the termination of the NRC license. This requires the remediation of all radioactive material at the site in excess of applicable legal limits. The characterization of radiologically contaminated materials at the site and the procedures for safe handling, storage, and transport of radiologically contaminated materials at the site is the subject of a tremendous amount of data collection, analysis, and planning that is contained or referenced in PG&E's correspondence with the NRC.

The remediation of chemical contamination is regulated by the DTSC. Management of soil generated by HBPP decommissioning has be pursuant to the DTSC approved IMRAW. The DTSC is currently reviewing the draft FS/RAP submitted to DTSC in October 2014. The FS/RAP updates the soil contaminant screening thresholds and addresses the restoration and redevelopment of the HBPP. The FS/RAP will supersede the IMRAW once approved and a soil management plan will be prepared to replace the IMRAW to address soil management during any remaining decommissioning and restoration activities.

Remediation of radiological or chemical contaminated soils would occur during restoration. Specifically, there are areas where FSR plan implementation may encounter contamination or where remediation of known contaminated sites could occur during remediation. These areas are described below. In addition, remediation of unanticipated radiological or chemical contaminated soils could also occur during

restoration. Remediation activities within wetland areas, beyond those described below, would be addressed as a separate permitting action by the Coastal Commission

- The northeast corner of Bayview Heights (Area 3) received excavated soil from other areas of the site as fill material in 2009. Chemical sampling of the fill did not identify any non-radiological chemical contamination. This fill will be removed as part of the final site restoration and will be sampled for radiological and non-radiological chemical impacts. It is expected that the fill will meet criteria to be able to be reused onsite; however, the excavated fill will be disposed if sampling indicates impacted soil that does not meet reuse criteria or is above the DCGL.

  A location with elevated concentration of lead in soil that currently lies beneath the fill is included as a potential soil removal area in the FS/RAP, which includes a planned pre-excavation soil investigation to confirm its presence and to further define the volume of soil to be removed. It is expected that remediation of this area will likely be performed in conjunction with the FSR implementation in this area.

- Along the north side of Bayview Heights (Area 3) there is a debris burial area with lead concentrations above the final clean-up goals specified in the RAP. The extent of the lead contamination is estimated to be approximately 40 feet long, 30 feet wide, and 2 feet deep. This area will require remediation by the DTSC prior to issuance of its Certificate of Completion.

- Trailer City (Area 4) is identified in the License Termination Plan as an area where additional characterization is necessary. Based on the soil characterization results, remediation may be required to ensure the area is below the DCGL. If the DCGL is exceeded, the soil will be excavated and removed from the site

- Trailer City Stormwater Detention Pond Area (subarea 4b) formerly contained two concrete surface impoundments with synthetic rubber liners and were used to store hazardous wastes under a DTSC permit from 1977 until 1996. In 1997, the remaining liquid waste and sludge was removed, the liner surface decontaminated, and soil samples were collected from borings located around the perimeter. No residual contamination requiring remediation was identified and DTSC approved the clean closure of the impoundments. The impoundments were subsequently used for accumulation of storm water until the liner and upper portion of sidewalls were removed and the area backfilled to enable the installation of trailers for HBPP decommissioning staff (CDP E-07-005). The remaining concrete structure and adjacent soils will be removed as part of the FSR plan implementation. Based on the results of the 1997 DTSC clean closure of the impoundments, the concrete rubble/soil removed is not expected to contain hazardous materials; soil sampling will be conducted during the removal to confirm the excavated soil does not contain hazardous materials and this area will be leveled and surfaced with gravel.

  To the west of the location of the former surface impoundments, there is a location with an elevated concentration of lead in soil that is included as a potential soil removal area in the draft FS/RAP. A pre-excavation soil investigation is planned to confirm its presence and to further define the volume of soil to be removed. It is expected that remediation of this area will be performed in conjunction with the FSR implementation of final grading of this area.

- Portions of the Circulating Water Pipeline that serviced Units 1, 2 and 3 that have been targeted for removal may not be removed until site restoration occurs. This includes portions of the pipeline in the area adjacent to HBGS, and potentially a remaining piece of the Unit 1 Circulating Water Pipeline under Building 5. (This building, located in subarea 2f, may eventually be demolished, though it is currently slated for reuse by ISFSI Support). The pipeline debris is not expected to be radiologically or chemically contaminated. However, stagnant water remaining in the pipeline will likely have been putrefied from

accumulated decomposed biological matter (e.g., shellfish, etc.). Pipeline debris and any accumulated water will be removed and properly disposed.

- The wetland area identified as the Frog Pond (Subarea 6d) contains chemical contamination above final clean-up goals. The contamination stems from Liquid Fuel Oil tank #1 which was located where the Waste Management Building resides. During FSR implementation, the Frog Pond will be re-graded and vegetation removed for the creation of the Frog Pond Stormwater Detention Basin. At that time, soil remediation activities will also occur. The Frog Pond area will be restored with native hydrophitic plants conducive to stormwater basin function and wetland habitat suitability.

In addition, the FSR plan implementation will involve the removal of water lines that are no longer needed and that have not been removed as part of prior phases of the decommissioning program. For example, an estimated 1,000 feet of 6-inch-diameter transite water lines containing asbestos will need to be removed.

3.3.6.2 Impacts

Hazardous materials handling and transportation for the project is regulated and controlled by numerous state, federal, and local agencies. The regulations for handling asbestos and other hazardous materials are sufficiently stringent to render the potential for release to the environment from spill or accidental breach of containment as less than significant. Modern engineering designs for containment and proven BMPs and standards of care would minimize any potential release of hazardous waste to within the project boundary. Characterization and disposal planning for hazardous waste removal and transportation have been underway for nearly a decade at HBPP. The water lines that will be removed and that contain asbestos will amount to approximately 7 cubic yards (6 tons) of material.

Overall impacts from hazardous materials would not be significant given the level of preparation, control, and regulation that exists at the site for these types of materials.

3.3.6.3 Minimization and Avoidance Measures

Since HBPP has operated for over 50 years and all past industrial operations or chemical uses are not completely documented, the potential exists that previously unknown or undocumented subsurface structures containing chemical or radiological contamination and/or contaminated soil may be discovered during excavations or grading performed during the FSR plan implementation. If such previously unknown or undocumented conditions are encountered, potential chemical or radiological contamination will be evaluated through performing characterization sampling. Based on the results of chemical and radiological testing, the presence of hazardous materials may be identified for removal and offsite disposal in accordance with the plans and procedures that have been used during the decommissioning program to meet the requirements of the DTSC IMRAW or SMP to be developed as part of the DTSC RAP implementation, and the License Termination Plan. If soil remediation in wetlands is necessary, beyond that described above, it will be addressed in a separate permitting action by the CCC.

A hazardous materials business plan is required by *California Code of Regulations* (CCR) Title 19 and the Health and Safety Code (Section 25504) and has been developed for the site. The hazardous materials business plan includes an inventory and location map of hazardous materials onsite and an emergency response plan for hazardous materials incidents. Specific topics in the plan include the following:

- Facility identification
- Emergency contacts
- Chemical inventory information (for every hazardous material above threshold limits)
- Site map
- Emergency notification data
- Procedures to control actual or threatened releases
- Emergency response procedures

- Training procedures
- Certification

The hazardous materials business plan is on file with the Humboldt County Department of Environmental Health (DEH) and updated annually in accordance with applicable regulations. The Humboldt County DEH would ensure review by and distribution to other potentially affected agencies including the Humboldt Fire District. All hazardous materials would be handled and stored in accordance with applicable codes and regulations.

In accordance with emergency response procedures specified in the hazardous materials business plan, designated personnel would be trained as members of a plant hazardous material response team, and team members would receive first responder and hazardous material technical training to be developed in the hazardous materials business plan, including training in appropriate methods to mitigate and control accidental spills. In the event of a chemical emergency, plant personnel would defer to the City of Eureka Regional Hazardous Materials Response Team, which is an on-call team from the Eureka Fire Department. The nearest fire station to the project site, Fire Station #12, located at 755 Herrick Way, would be the first responder to the site, but additional support would be provided by the Hazardous Materials Response Team.

3.3.6.4 Security Plan

In addition to standard industrial business security measures, PG&E has prepared a security plan that would be implemented for this project.

Regulations that apply to the transportation of hazardous, mixed-waste, and radioactive material promulgated by the U.S. Department of Transportation that are being implemented for the decommissioning project would also be used.

3.3.6.5 Asbestos Regulations

National Emissions Standards for Hazardous Air Pollutants (NESHAP) Regulation. NESHAP (EPA) regulations, as enforced by the local North Coast Unified Air Quality Management District (NCUAQMD) are designed to protect air quality. Under NESHAP regulations, asbestos-containing materials (ACMs) that are friable or that may become friable by disturbance during renovation and/or demolition and contain greater than 1 percent asbestos are categorized as regulated asbestos-containing materials (RACMs), requiring abatement prior to disturbance. RACM is defined under NESHAP as being ACM that is friable or that will be rendered friable by renovation and/or demolition activities.

OSHA Regulations. For the purposes of worker protection, the disturbance of all of the ACM and asbestos-containing construction materials (ACCM) materials are subject to all worker protection provisions of Cal/OSHA asbestos standard for the construction industry (8 CCR 1529), and the disturbance of ACM and ACCM by anyone under employment by the owner will be subject to those regulations. ACCMs contain greater than 0.1 percent asbestos, and the disturbance of these materials is subject to Cal/OSHA regulations for the protection of workers.

3.3.7 Hydrology/Water Quality

Sections 30230, 30231, 30232, and 30233 of the CCA, included in Section 3.3.4, Marine Environment above, address the minimization of adverse effects of waste water discharge and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface-water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. Protections of these resources is discussed below.

3.3.7.1 Existing Setting

Surface Water. On site surface waters and wetlands include the Intake and Discharge canals, which were created to provide once-through cooling water to the HBPP. The Intake Canal connected with Fisherman's

Channel and the Discharge Canal discharged to Humboldt Bay. Operation of the HBPP and the once-through cooling system ceased in 2010 when the HBPP was shut down and decommissioning began. Other on-site surface waters include the Duck Pond, a brackish water wetland at the eastern end of the HBPP property; the Frog Pond, which collects rainwater adjacent to the Assembly Room and Bravo Road; and Buhne Slough, a tidal channel that connects with the Fisherman's Channel and Humboldt Bay.

Stormwater. As part of the FSR plan implementation, portions of the existing storm water conveyance system will be retained, while other sections will be entirely removed, resulting in significant alteration to drainage patterns and outfalls. Under the new storm water management plan (see Appendix A, grading and drainage plan), storm water runoff will be routed through newly constructed detention basins (Trailer City and ISFSI detention basins) before being released into adjacent wetland regions. In addition, the existing Frog Pond detention basin will be connected with the newly constructed ISFSI detention basin to create a larger and better functioning stormwater management system for this portion of the site.

These changes in the storm water conveyance system will act to improve the water quality and dampen the peak flows leaving the site, increasing the ecological function and condition of adjacent wetlands. The proposed drainage system will substantially improve treatment and metering of the storm water runoff.

The design of the new drainage features comply with the RWQCB's LID methodology. The site drainage design will feature capture of 100 percent of the storm water runoff generated on site from the 85 percentile, 24-hour design storm. This design standard meets the RWQCB's requirements and provides treatment and detention of the required volume of storm water. Fulfillment of this design criterion is anticipated to provide adequate levels of treatment for storm water leaving the site.

PG&E conducted the previously authorized demolition of Units 1, 2, and 3 under NCRWQCB NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, NPDES Permit No. CAS000002, Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ for industrial discharges. The following BMPs are applicable to the FSR plan implementation:

- Vegetation would be left in place to the degree possible to reduce potential sedimentation.
- All stockpiled material would be placed such that potential erosion is minimized.
- Filter fabric, straw bales, and/or sediment basins would be firmly placed to minimize erosion.
- Storage areas should be lined with an impermeable material to prevent the release of fuel, oils, grease, or hydraulic fluids in the event of a spill.
- The storage site should be separated from adjacent surface runoff by containment berms having sufficient dimensions to retain the volume of fluids within the storage area.

3.3.7.2 Impacts

The area of disturbance associated with the proposed project is within the previously developed decommissioning project area. Existing access roads would be used, and no new access roads would be constructed. The existing staging and laydown areas would be used.

As previously authorized by CDP E-09-010, surface improvements to staging areas, including placement of paving and necessary BMPs, may be performed to accommodate all-weather use during construction and facilitate surface water management.

An estimated total 60,000 yd^3 of soil would be excavated to complete the FSR plan implementation. Grading would take place to recontour the Bayview Heights filling the Discharge Canal, and create a wetland preserve in the Trailer City area. Cut and fill of soil will be balanced so that it is not necessary to import or export soil, except for radiological or chemical contaminated soil requiring disposal off-site. Approximately 15,000 yd^3 of compactable aggregate will be imported from a local material batch plants

within 25 miles of the HBPP as material needs become evident and potential onsite reusable stockpiles are used.

Excavated material would be temporarily stockpiled onsite before reuse. The temporary stockpiles of disturbed soil could be subject to erosion from precipitation and wind.

Potential impacts on adjacent surface water bodies, such as Humboldt Bay, would include the potential discharge of pollutant-laden stormwater runoff from the proposed project's excavation and demolition activities and the potential for erosion- and/or demolition-related runoff. In addition, construction materials could contaminate stormwater runoff and groundwater if not properly stored and used.

The realignment of Alpha Road so that it makes a 90-degree intersection with King Salmon Avenue has the potential to affect Buhne Slough, a water of the state because some work may occur below the mean high tide line. The project would require a Lake and Streambed Alteration Agreement from the CDFW for this aspect of the project.

No impacts on groundwater are anticipated.

3.3.7.3 Mitigation

The qualified SWPPP developer would amend the SWPPP to include the proposed project. The SWPPP would include BMPs to address erosion and sediment controls, non-stormwater management, and materials management.

Stormwater. The SWPPP would be amended to address information provided by the contractor regarding design, implementation, operation, monitoring, and reporting of activities under the General Permit for Stormwater Associated with Construction and Land Disturbance Activities, Order No. 2010-0014-DWQ, CAS000002 (Construction General Permit).

The long-term result of the FSR plan implementation will be better management of storm water and improved water quality due to the LID-based stormwater detention ponds that will be installed in the Discharge Canal and ISFSI support areas. The improvements to the existing Frog Pond and its connection to the ISFSI storm water detention pond will also help to improve storm water management and surface water quality. No additional mitigation measures are necessary.

Surface Water. The project elements with the greatest potential to cause erosion and sedimentation in runoff to surface waters are the replacement of two existing culverts that drain to the Intake Canal, from the Buhne Point Wetland Preserve and Frog Pond, respectively, and the realignment of Alpha Road. Adverse impacts to surface water quality will be avoided by performing the final culvert replacements during a single, low-tide episode. Excavation of the culverts leading up to the canal rim will be completed before low tide occurs, with the culverts plugged at the canal end. Final excavation of the culvert areas adjacent to the canal, replacement, and backfilling, will take place entirely during the low tide episode with BMPs in place to protect water quality. In this way, impacts to surface waters will avoided. The construction methods are discussed in greater detail in Section 2.2.3. No additional mitigation measures are necessary.

Similarly, work on the Alpha Road realignment will use BMPs to control sedimentation and erosion as the mechanically stabilized earth-wire wall is installed to avoid sedimentation into Buhne Slough.

3.3.8 Land Resources

Article 5, Chapter 3 of the CCA addresses land resources and the protection of environmentally sensitive habitat areas, archaeological resources, productivity of soils, and agricultural lands. The potential for impacts on sensitive habitat areas is discussed in Section 3.3.5, Biological and Wetland Resources. The remainder of these resource issue/area topics is discussed in Sections 3.3.9, Archaeological Resources; 3.3.10, Geology/Soils; and 3.3.11, Land Use/Agricultural Resources.

3.3.9 Archaeological Resources

As referenced in Section 30244 of the CCA, this section addresses potential effects on archaeological or paleontological resources as identified by the State Historic Preservation Officer.

3.3.9.1 Existing Setting

A comprehensive cultural and archaeological resources investigation of the then 143-acre HBPP property was undertaken for the 2006 Application for Certification (AFC) for the new HBGS. The purpose was to analyze the potential effects of HBGS construction and operations on cultural resources. The investigation reported in the AFC provided a brief cultural background of the project area (i.e., prehistory, ethnography, and history); discussed the results of a records search from the North Coastal Information Center of the California Historical Resources Information System (CHRIS); summarized the contacts made with the California Native American Heritage Commission regarding traditional cultural properties and correspondence with local tribes, individuals, and the local historical society; discussed the methods and results of the archaeological field survey of the project area; reported on the cultural resources identified within the project area, their potential significance, and the potential effects of the project on the resources; and presented applicable laws, ordinances, regulations and standards along with agency contacts, permit requirements, and schedules.

In 2003, a cultural resources report was conducted on behalf of PG&E for the ISFSI project (PAR Environmental Service, Inc., 2003). The report determined that Unit 3 qualifies as an exceptionally important property under the National Register of Historic Places (NRHP) Criterion Consideration G. It found that Unit 3 is exceptionally important and National Register-eligible because of its unique and pioneering place in the history of commercial nuclear power and its highly innovative design and construction techniques. The ISFSI report concluded that, although Unit 3 is clearly a significant historic property, the ISFSI project will have no adverse effect on it. The State Historic Preservation Officer (SHPO) concurred that the ISFSI project will not have an adverse impact on historic properties (Office of Historic Preservation, 2005).

Because the PG&E action in 2003 to construct the ISFSI involved only Unit 3, the significance of the other units or the entire plant complex as a historic district was not evaluated. Unit 3 was found to be significant, but not subject to impacts from the ISFSI project. Similarly, in the 2006 AFC for the new HBGS project, Unit 3 was found to be significant, albeit not subject to project impacts; but Units 1 and 2 were found not to be individually significant. In its review, however, CEC staff declared that the entire property consisting of the three units should be considered significant under the CEQA as a historic district.

To mitigate the effects of demolishing Units 1, 2, and 3, a Historic American Building Survey (HABS)/HAER program was initiated to document the properties individually and as a historic district. The program was conducted according to HABS/HAER guidelines established by the National Park Service to document historic places. Documentation produced through HABS/HAER, and related programs, constitutes the nation’s largest archive of historic architectural, engineering, and landscape documentation. With the completion of this documentation, mitigation of the effect was accomplished.

The HBPP site was judged on the basis of the 2006 cultural resources investigation to be potentially sensitive for cultural resources associated with native cultures. The HBPP site is shown on aerial photographs that pre-date the HBPP to have been a marshy lowland adjacent to Buhne Slough. This area was covered with 0.6 to 1.8 miles (2 to 6 feet) of fill when the HBPP was constructed; consequently, archaeological sites will not be expected to be visible on the current HBPP site ground surface.

A records search of the project area was conducted for the AFC by the North Coastal Information Center of the CHRIS at the Yurok Tribal Office in Klamath, California, on May 4, 2006. The record search indicated that five previously recorded native cultural sites are located within a mile of the project area.

3.3.9.2 Impacts

Although significant Native American archaeological sites were not found during the archaeological field survey for the HBGS or with any excavations associated with HBPP decommissioning, excavations associated with HBPP site restoration could encounter buried archaeological remains. Special Condition 5 for HBPP decommissioning CDP E-09-010 required that PG&E prepare an Archaeological Resources Protection Plan which described worker training in identifying cultural resources, identified the designated on-call cultural resources specialist, described archaeological monitoring to occur during earth moving activities, and procedures to halt construction and evaluate resources in the event of a discovery. This plan was submitted in April 2010 and approved by the Coastal Commission in May 2010.

In September 2013, PG&E submitted a revision to the plan which recommended that no further archeological monitoring be required given the disturbed nature of the HBPP site. The revised plan was based on a study conducted by Dmitira Zalavaris-Chase, the CCC approved Cultural Resources Specialist for HBPP decommissioning. Ms. Zalavaris-Chase has extensive archaeological monitoring experience at both the HBPP and the HBGS[7]. She conducted a study to determine specific locations within the HBPP project area that were previously undisturbed or undeveloped, which may indicate a higher likelihood of discovering cultural resources.

During the extensive subsurface activities at HBGS, a culturally sensitive soil horizon, Horizon A, had been identified and documented throughout the HBGS work area. In conjunction with this prior monitoring information, the sensitivity study also examined previous reports, soils and geology maps, historic aerial photographs taken during construction of the HBPP, and topographic maps to determine where Buhne Point had been modified and where Horizon A was likely undisturbed and intact. Based on the results of the study, Ms. Zalavaris-Chase determined that no further archaeological monitoring would be needed for the remainder of the HBPP decommissioning program since all areas identified as having a high potential for cultural resources had been examined or previously experienced excavation or disturbance.

3.3.9.3 Mitigation

Prior to the FSR plan implementation, PG&E will implement the existing Archaeological Resources Protection Plan for Coastal Commission. This will involve evaluating whether monitoring is warranted in any of the restoration project areas and monitoring once per week during the excavation of the Alpha Road Parking Lot mitigation area. The other provisions of the plan such as: (1) retaining a designated on-call cultural resources specialist; (2) implementing a worker training program; (3) procedures for halting earthmoving activities and evaluating resources should they be discovered, will remain in force.

3.3.10 Geology/Soils

CCA Section 30253 requires that new development:

> …minimize risks to life and property in areas of high geologic, flood, and fire hazard; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that will substantially alter natural landforms along bluffs and cliffs.

3.3.10.1 Existing Setting

HBPP is located in the Coast Ranges Physiographic/Tectonic Province and is within a highly active seismic region that has had numerous earthquakes. The geology of the region around the site is complex, reflecting geologically rapid processes driven by recent (i.e., last 10,000 years) tectonics and rapid erosion. The site

[7] Ms. Zalavaris-Chase was the California Energy Commission approved Cultural Resources Monitor for the HBGS.

lies within the Eel River sedimentary basin. The sediments in the basin are young and generally not well cemented and have been dramatically deformed by tectonics driven by the Cascadia Subduction Zone as it extends from offshore to onshore in the Eureka area. The resulting geologic structures of this zone in the Humboldt Bay region are dominated by north-northwest trending compressional structures, some of which are reactivated faults that formed during earlier phases of plate convergence that have affected the region since the Late Jurassic. The Mad River Fault Zone and the Little Salmon Fault Zone are major reverse faults that pass near the site. They are active with multiple movements documented during the past 10,000 years.

HBPP lies within the Little Salmon Fault Zone. The zone has a total length of 59 miles, including offshore traces. The Little Salmon Fault Zone is part of the Little Salmon Fault system of active folds and reverse faults that extends from its intersection with the freshwater fault/Coastal Belt thrust near Bridgeville, northwest to its intersection with the Thompson Ridge Fault off the coast of southern Oregon. The fault system trends parallel to the deformation front associated with the leading edge of the Cascadia Subduction Zone. Four traces of the Little Salmon Fault Zone are mapped near the HBPP site. These include two primary fault traces, the Little Salmon and Bay Entrance Faults, and two subsidiary faults that are in the hanging wall of the Bay Entrance Fault. The subsidiary faults are the Buhne Point Fault and the Discharge Canal Fault.

The project site includes Buhne Point, a small headland on the eastern shore of Humboldt Bay, and part of the small isolated Buhne Hill that rises to elevation 64 feet above MLLW. The property also includes the adjoining sand flats in the bay to the northwest and adjacent marsh and filled marsh to the northeast, east, and south. The Hookton Formation forms Buhne Hill. Surrounding Buhne Hill and overlying the Hookton rocks are Holocene estuarine deposits from Humboldt Bay and alluvial deposits from Elk River. These sedimentary units are complicated with rapid facies changes and layers of organic silt, soft sand and silt, sand, and lenses of gravel. The hill has been uplifted and tilted slightly to the northeast by displacements on the Buhne Point Fault, which is to the southwest, and the Discharge Canal Fault, which is to the northwest.

3.3.10.2 Impacts

CCA compliance requires that “new development… minimize risks to life and property in areas of high geologic, flood, and fire hazard; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that will substantially alter natural landforms along bluffs and cliffs.” Although the proposed project is not “new development,” project activities would include ground disturbance. In addition, two buildings constructed for decommissioning, the Environmental Count Room and the Waste Management Building, are proposed to remain for use by ISFSI personnel and HBGS, respectively.

As identified above, several geologic hazards and soil conditions have the potential to affect the site, including seismic shaking, liquefaction, tsunami inundation, possible surface faulting, and erosion. A strong seismic event could place project personnel at risk, but ground shaking, by itself, does not strongly increase the risk of hazardous materials exposed during demolition being transported offsite. PG&E will continue to implement its safety training for onsite personnel on procedures to follow during seismic events. The potential for onsite or offsite landslide is low, and therefore, the exposure of people and property to this type of geological hazards does not constitute a significant impact.

The factors that have the greatest effect on soil erosion include steep slopes, lack of vegetation, and erodible soils having a large proportion of fine sands. The project site is nearly level from past grading. The predominant surface soil condition is silty clay loam, with a water erosion potential of slight to moderate. The potential for soil erosion in the decommissioning project area comes mainly from water (including precipitation and tsunami) and wind. Impacts associated with the potential for ground-disturbing activities

to result in the movement of soil or erosion into water bodies within or adjacent to the project site is addressed in Section 3.3.7, Hydrology/Water Quality.

Regarding the buildings proposed to remain after decommissioning and restoration, the Environmental Count Room is a 4,000 square-foot slab-on-grade metal building which currently serves as a laboratory for chemical and radiological characterization of soil and water encountered at the HBPP site. The structure was designed by PG&E and permitted by the Humboldt County Building Department in October 2009 to meet Occupancy Class "L" for laboratories in accordance with the 2007 California Building Code (CBC). The design was based in part upon a Soils Report dated Sept. 10, 2009, prepared by a CA licensed professional engineer.

The Waste Management Facility is a 12,500 square-foot slab-on-grade metal building which currently serves as a packaging and storage area for demolition waste streams. The structure was designed by PG&E and permitted by the Humboldt County Building Department in August 2012 to meet Occupancy Class S-2/F-2 for storage and packaging of low hazard materials in accordance with the 2010 CBC. The design was supported by a soils report dated June 13, 2012, prepared by a CA licensed professional engineer.

The Environmental Count Room and Waste Management Facility were designed, sited, and built in consideration of the geologic hazards of the site as postulated by the building code, local jurisdictional requirements, and project specific soils reports prepared by licensed professional engineers. Both buildings were located on previously developed areas of the HBPP footprint.

Structural design of the buildings was performed in accordance with the CBC and the ASCE 7-05 requirements for Occupancy Category II structures. Ordinary steel moment frames were selected as the seismic force-resisting system for both structures based on the desired ductile response characteristics which result in significant inelastic energy dissipation during seismic events.

The building code warrants the use of a Probabilistic Seismic Hazard Analysis (PSHA) for structures of this type and occupancy category. In the PSHA approach, building design is based upon a Maximum Considered Earthquake (MCE_R) which corresponds to a 2% exceedence probability in 50 years. The MCE_R in consideration is associated with an Effective Peak Ground Acceleration of approximately 1.09g. This event has a return period of about 2,500 years and results in the spectral response acceleration, S_{DS}, of 1.81g which signifies the design acceleration for short-period structures.

The PSHA approach applied is in contrast to the ISFSI seismic design methodology which used a *deterministic* approach to calculate the Maximum Credible Earthquake for the local geologic conditions. This approach was warranted due to the high-hazard and long design life associated with the ISFSI. The deterministic ground motion was conservatively calculated assuming simultaneous seismic effects from both the Little Salmon Fault Zone and the Cascadia Subduction Zone. Peak Ground Acceleration for the HBPP site in this case was estimated to be 1.32g.

The Buhne Point Fault and Discharge Canal Fault are known features of the Little Salmon Fault Zone which are observable on the HBPP site; however, they are neither sufficiently active nor well defined to meet the mapping criteria established by the Alquist-Priolo Earthquake Fault Zoning Act. For this reason, engineering design for fault rupture hazards was not a requirement of the local jurisdiction or building code in the design of the Occupancy Category II structures. Additionally, based on the direct observation of the soil types and depths at the sites, it was concluded that liquefaction potential is negligible and further protected against by the administration of a Special Inspection program for the preparation of the building subgrades.

The primary impact of FSR plan implementation relating to geologic hazards and soils is the potential for precipitation, tsunami, or earthquake to cause soil erosion, transport of hazardous materials by water or wind in the event of erosion, and the related impact of such transport to onsite and offsite water quality.

Impacts could also occur with respect to fugitive dust, which are addressed in Section 3.3.14, Air Quality. Given that project activities would avoid potential storm-related runoff and involve improvement of the storm water management system on site (see Section 3.3.7, Hydrology/Water Quality), and the potential for tsunami or earthquake during demolition is considered low, no significant impacts on geology/soils resources are expected.

The standard of construction and design applied by PG&E to the development of the Environmental Count Room and the Waste Management Building meets the intent of Section 30253(1) of the Coastal Act, as they were designed in observance of the standards set forth by the building code and the local jurisdiction; and their development was aided by information gathered through direct observation of site geologic conditions.

3.3.10.3 Mitigation

To mitigate potential impacts from soil erosion, the contractor would amend and update the SWPPP, as described in Section 3.3.7, Hydrology/Water Quality.

3.3.11 Land Use/Agricultural Resources

3.3.11.1 Existing Setting

The power plant site is on land zoned as coastal dependent industrial (MC) with combining[8] district designations for coastal resource dependent (C), flood hazard (F), and coastal wetland (W). The project site is currently used for industrial purposes (i.e., electrical power production and spent nuclear fuel storage). The project is in an unincorporated area within Humboldt County's jurisdiction. However, the City of Eureka's sphere of influence extends west and south of the project site.

Although Humboldt County has a certified Local Coastal Program, the HBPP site is within the retained jurisdiction of the CCC. The HBPP property includes natural and constructed features including wetlands, Buhne Slough, and the power plant cooling water intake and discharge canals. The property is bounded on the north by Humboldt Bay, on the west by the King Salmon community, on the east by Northwestern Pacific Railroad tracks, and on the south by King Salmon Avenue. East of the railroad property are US 101, rural parcels, and commercial development. South of King Salmon Avenue are wetland areas and the Humboldt Hill residential development. Southwest of Humboldt Hill is the community of Fields Landing. West of the King Salmon community are Humboldt Bay, a sand spit known as South Spit, and beyond the spit, the Pacific Ocean.

A public trail (described in Section 3.3.3, Recreation), included as part of the California Coastal Trail system, is on the north and western side of the HBPP site along Humboldt Bay. The Elk River Wildlife Area is approximately 2,000 feet northeast of the HBPP site. Several recreational parks are in the City of Eureka, which is greater than 1 mile north of the site.

3.3.11.2 Agricultural Resources

Section 30241 of the CCA states the importance of maintaining the maximum amount of prime agricultural land to ensure the protection of agricultural productivity. The HBPP site is zoned as coastal dependent industrial and is used for electrical power production. None of the areas on which project construction would occur are used for agricultural production. Prime agricultural land is within 1 mile of the HBPP site within the Elk River Valley and on portions of Humboldt Hill to the east of the HBPP site. The proposed project would not involve conversion of agricultural lands to other uses.

[8] A Combining Zone is an additional zoning designation applied to some (but not all) properties. A Combining Zone modifies the allowed land use in some way when necessary for sound and orderly planning (Humboldt County, 2009a).

3.3.11.3 Impacts

Activities associated with the implementing the FSR plan would not physically divide the local unincorporated area within Humboldt County. The project would be within the boundary of HBPP in an area used for power generation and spent nuclear fuel storage and would not conflict with existing uses onsite.

3.3.11.4 Mitigation

No mitigation is required.

3.3.12 Development

Article 6 of the CCA describes the sections and provisions for development under the authority of the CCC. The CCA defines development as follows:

> "Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).
>
> As used in this section, "structure" includes any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

The proposed project consists of restoring the HBPP site once decommissioning activities are complete. This work would include, for example, removal of temporary trailers, demolition of buildings, grading, wetland creation, and revegetation. Site restoration will have an overall beneficial impact on the coastal resources, aesthetics, safety of the area, and security of infrastructure including the HBGS and ISFSI. The following addresses the applicable sections of Article 6 and describes how they pertains to the proposed project.

- Development Section 30250, Locating development within, contiguous with, or in close proximity to, existing developed areas able to accommodate it:
  - The restoration of the HBPP site will occur within the boundaries of the HBPP site, which consists of existing developed areas, specifically the ISFSI and HBGS.
- Development Section 30251, Scenic and Visual Qualities: The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.
  - The restoration of the HBPP site will improve the scenic environment of the site. Section 3.3.13 Aesthetics includes a visual analysis associated with site restoration.

- Development Section 30252, Maintenance and Enhancement of Public Access
  - Coastal access associated with the HBPP property was previously provided pursuant to a CCC condition of approval for PG&E's ISFSI project. Specifically, PG&E established a deed restriction for a public access trail (the Shoreline Trail), which extends along the shoreline paralleling the western fence line of the HBPP property boundary.

    In addition, as part of the CDP issued for the HBPP Intake and Discharge canal remediation, PG&E provided improvements to the Buhne Point Vista, which overlooks Humboldt Bay. The improvements included replacing a wooden bench and retaining wall, adding a safety barrier along the edge of the vista, and repairing the trail leading to the Vista.
- Development Section 30253, Minimization of Adverse Impacts
  - Project impacts have been avoided, minimized, or mitigated to the extent possible. Wetlands features have been delineated and sensitive habitats were identified early in the project to allow for complete avoidance if possible. Where avoidance does not appear possible, project design has minimized impacts to the extent practicable. Mitigation was the last considered option and is described in detail in the resource assessment.
- Development Section 30255, Priority of coastal-dependent developments. Section 30255 states: Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.
  - The HBPP was a coastal-dependent use since it required the use of once-through cooling utilizing sea water. The proposed project is to restore the area of this coastal dependent use. The minor wetland impacts associated with the restoration of the site are addressed in Section 3.3.5 Biological Resources and Wetlands. The FSR plan implementation will result in an increase on site of wetlands and an improvement of wetland function.

3.3.13 Aesthetics

Section 30251 of the CCA requires that all new development within the CCC's sphere of influence consider and protect the scenic and visual qualities of the coastal areas, and that permitted development will be designed to protect views to and along the ocean and scenic coastal areas. Although this project does not consist of new development, site restoration activities will take place over a 1-year period and, therefore, the aesthetic quality of the proposed project is being considered. In addition, the FSR plan proposes to make permanent some facilities, such as the Environmental Count Room, the Waste Management Building, and Portal, and Alpha Roads, previously proposed as temporary.

3.3.13.1 Existing Setting

Situated along Humboldt Bay between the Elk River to the north and Salmon Creek to the south, much of 74.9-acre site is relatively flat, with an elevation of approximately 15 feet above sea level. The property also features Buhne Point Hill, which rises to an elevation of 64 feet above sea level. The site lies about one-third mile west of US 101.

The PG&E facilities located at the site formerly included two natural gas-fired steam boiler electrical generating units (Units 1 and 2) and the Unit 3 nuclear power plant. However, Units 1 and 2 have been demolished and the above-ground structures associated with Unit 3 are being demolished. These structures were more than 100 feet high and relatively massive and could be seen for a distance of 2 miles away and beyond. Prior to the demolition of Units 1 and 2, PG&E constructed the HBGS as the new source of power generation for the Humboldt Bay region. The HBGS consists of a large engine hall and air-cooled condenser

array. Two bundles of exhaust stacks with five stacks per bundle extend to a height of 100 feet and are visible from at least a mile away. However, the CEC in its visual analysis of the HBGS determined that the project structures would not substantially degrade existing viewsheds and would not result in a significant visual impact. The visual profile of the HBGS is significantly lower than that of the former HBPP.

Storage buildings and temporary structures associated with the HBPP decommissioning program are located around the site. The entire facility is surrounded by a chain-link fence topped with barbed wire. Alpha Road and a guardhouse are located off King Salmon Avenue just west of the Buhne Slough.

At present, nighttime lighting operates at the HBGS site from dusk to dawn for personnel safety and security purposes. Lighting includes pole-mounted lighting structures and lighting at building entrances. As required by the CEC, the lights are hooded and directed downward. At the bay edge of the site, riprap stabilizes the shoreline. On the west and south side, groupings of mature trees screen views toward the site. Access to the project site and the adjacent King Salmon community is from US 101 through King Salmon Avenue. The North Coast Railroad tracks run approximately north-south to the east of the property. The railroad has been out of service since 1997. North of HBPP, the tracks lie adjacent to the shoreline trail. This public trail runs along the shoreline on the perimeter of the site to the northwest. Opposite US 101 to the northeast of the site, Humboldt Hill rises steeply to elevations of more than 500 feet. Dense tree cover and hillside residences occupy portions of Humboldt Hill.

The project location has been an active construction and demolition site for several years. HBGS construction began in 2008, and operations began in October 2010. Demolition activities for Units 1, 2, and 3 have been ongoing since 2010.

3.3.13.2 Impacts

Project activities would involve the use of heavy equipment to construct storm water detention ponds and wetlands, and re-contour Bayview Heights. While noticeable, these construction activities would be temporary and would not result in a significant aesthetic impact given the existing nature of the site. Existing staging and laydown areas would be used for construction equipment.

Nighttime construction activities are not planned or anticipated; however, in the event that schedule or operational issues require nighttime work, PG&E will consult the CCC in advance regarding the required lighting and to propose any necessary mitigation measures and provide additional information submittals as required.

The overall purposes of implementing the FSR plan are to restore the project site to a stable condition after decommissioning, repurpose portions of the site for HBGS utility use, meet previous obligations to create natural areas to fulfill mitigation requirements for previous activities on site, and to restore areas used during construction to a natural or enhanced natural state. Generally speaking, these activities will result in an improvement to local visual resources, though the project site will continue to be an industrial area, with predominantly utilitarian architecture.

The Waste Management Building was constructed as a three-sided, open storage structure in the former location of a liquid fuel oil tank. It has been used for processing contaminated soil and other wastes associated with the decommissioning project. The FSR plan calls for this building to be enclosed to serve as a warehouse for the HBGS. To enclose the building, the previously “open” northeast facing side, would be enclosed with a new wall. The structure is needed for HBGS operation, as a warehouse was never built to serve HBGS due to the constrained building site area available while Units 1, 2, and 3 were still in place. This will allow HBGS to come up to the standard for a power plant of its size, for available warehouse space. Analysis of the visibility of the Waste Management Building from Key Observation Points (KOPs) chosen for the HBGS CEC Licensing proceeding Visual Resources analysis, resulted in the observations and conclusions presented in Table 3-3. The KOPs were chosen to represent key viewing populations for the HBPP site in general and thus would be applicable to the Waste Management Building as well.

TABLE 3-3
Key Observations Points, Viewshed Analysis, Waste Management Building

Key Observation Point	Viewing Population	Comment
KOP-1: Northbound Highway 101	US 101 mobile viewer	The side of the building is briefly visible from a short segment of roadway as a relatively minor site component. Existing vegetation partly screens views of the building. The HBGS power plant and switchyard are the dominant site structures that attract viewer attention, albeit briefly, from this segment of roadway.
KOP-2: King Salmon Avenue	King Salmon resident, mobile viewer	The side of the building and other site components are prominent from this location (primarily due to their light colors). The building and other structures and components are partly screened by existing mature trees which somewhat attract attention and reduce the structures' and components' visual prominence.
KOP-3: Shoreline Trail	Recreational hikers on the Shoreline Trail	Not visible from this location.
KOP-4: Loma Avenue	Residential viewers on Humboldt Hill	The sides and roof of the building are partially screened by trees, and although somewhat visible, do not attract viewer attention. At this distance the buildings' form scale, and color allow it to blend in with other structures on the site (ISFSI, HBPP Building 5, HBGS).
KOP-5: Spruce Point Vista	Stationary viewers from designated scenic viewpoint overlooking US 101	Barely visible behind the HBGS air-cooling structure.
KOP-6: South Spit Wildlife Area	Recreational viewers across Humboldt Bay	Not visible from this angle because Buhne Hill blocks the view of this part of the HBPP.

The Waste Management Building is a large building (125' x 100' x 27'). Of the six KOPs identified above, the Waste Management Building is only clearly visible from KOP-2, northbound King Salmon Avenue. Views of the building from this viewpoint, are however, partly screened by existing large trees. The scale, form, and color of the Waste Management Building is similar to that of other structures on the site that can viewed from this location and does not attract viewer attention. Given that the overall result of the decommissioning program and FSR plan implementation will be the removal of visual clutter currently caused by several temporary buildings on Bayview Heights, the net result of the decommissioning program will be an overall improvement to local view sheds with the retention of the Waste Management Building. For these reasons, the retention of the building and conversion to a warehouse would not cause a significant adverse visual impact.

The Environmental Count Room will also be retained and converted into an office space for the ISFSI Support personnel. This single-story building is located on the former site of one of the liquid fuel oil tanks, measures 77' x 50', and has been used for analyzing radiological wastes. The building is visible at all only from KOP-2 (King Salmon Avenue) but is well screened by trees and does not penetrate the horizon. For these reasons, the retention of the building and conversion to an office would not cause a significant adverse visual impact.

3.3.13.3 Mitigation

As stated above, nighttime operations are not planned or anticipated. However, in the event that schedule or operational issues necessitate nighttime operations, construction lighting would be focused inward and downward to the extent allowed by NRC safety requirements and construction safety to minimize aesthetics impacts.

No further mitigation regarding aesthetics is required.

3.3.14 Air Quality

Section 30253 of the CCA requires that all new development within the CCC's sphere of influence minimize adverse impacts and maintain consistency with requirements imposed by an air pollution control district or State Air Resources Board. Although this project does not consist of new development, some grading and excavation will occur to create wetlands and Recontour restoration areas; therefore, potential impacts on local air quality resulting from the proposed project are addressed below.

3.3.14.1 Existing Setting

Geography and Topography. The project site is in the NCUAQMD, which in turn is part of the North Coast Air Basin. The terrain near HBPP rises rapidly from the bay on the north side on the Buhne Point Peninsula. Terrain to the north and east of the site is generally flat. To the south and east, the terrain rises rapidly, forming Humboldt Hill, and is the site of several small neighborhoods. Humboldt County is mostly mountainous except for the level plain that surrounds Humboldt Bay. The coastal hills surrounding Humboldt Bay begin with Patrick's Point, 30 miles to the north, extend to the southeast, then to the southwest, ending in Cape Mendocino, 23 miles from the site. The tops of these hills range from 1,500 to 2,500 feet, with the highest point (Kings Peak) reaching 4,087 feet, 40 miles directly south of Eureka. These hills create a rain shadow and shelter the region from heavier rainfall and temperature extremes.

Climate and Meteorology. The climate of the greater Humboldt Bay region, including Eureka and the immediate coastal strip where the project site is located, is characterized as Mediterranean. Summers have little or no rainfall, and low overcast and fog are frequently observed. Winters are wet, with frequent passage of Pacific storms, and temperatures are mild. The average annual temperature is 51°F, with the warmest months from July to September and the coldest months from December to February (Western Regional Climate Center [WRCC], 2009). The rainy season generally falls between November and March, with an average annual rainfall of 39 inches as measured at Eureka (WRCC, 2009). The wind is predominantly from the north to northwest, with a shift to the south to southeast during the winter months.

Greenhouse Gases and Global Climate Change. Global climate change describes a collection of phenomena, such as increasing temperatures and rising sea levels, across the globe as a result of increasing anthropogenic emissions of greenhouse gases (GHGs). GHGs contribute to climate change by allowing ultraviolet radiation to enter the atmosphere and warm the earth's surface, but also prevent some infrared radiation from escaping back into space. The largest anthropogenic source of GHGs is the combustion of fossil fuels, which emits primarily CO_2. GHG impacts are evaluated for project construction and operations by estimating the emissions from off-road construction equipment and on-road vehicles, as well as direct and indirect emissions from project operations.

3.3.14.2 Local Air Quality

Table 3-4 lists the attainment status for both the NAAQS and CAAQS.

TABLE 3-4
State and Federal Air Quality Designations for the Project Area

Pollutant	State Designation	Federal Designation
Ozone	Attainment	Unclassified/Attainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Attainment	Unclassified/Attainment
Lead, H_2S, and sulfates	Attainment	Attainment (lead), no federal standard

Source: ARB, 2012

Asbestos. Some of the materials that would be removed from the site contain asbestos. These materials would be abated prior to demolition activities in accordance with local, state, and federal regulations. In accordance with NCUAQMD Rule 401, the air district would be notified prior to removal of asbestos materials and provided with the asbestos demolition project fee. A discussion of asbestos is included in Section 3.3.6, Hazardous Materials.

3.3.14.3 Impacts

Construction Emissions. Construction of the project is expected to occur for one year, with activity occurring 10 hours per day, four days per week. A maximum of 150 construction workers would be on-site during the construction period. A total of 800, 10 cubic yard (CY) haul trucks would be used to remove material from the site. Additionally, it is expected that approximately 93 concrete truck deliveries will be required for the project. Table 3-5 presents the expected construction equipment and expected run time.

TABLE 3-5
Site Restoration Construction Equipment

Equipment / Vehicle List	Quantity	Total Run Time (hours)
Excavator	2	1,280
Dump Truck	12	7,450
Front End Loader	3	3,540
Dozer	2	1,800
Compactor	3	2,370
Backhoe	2	3,070
Asphalt Spreader	1	150
Hydro Mulcher	1	90
Flatbed Truck	1	830

The potential air quality impacts associated with the proposed project would be due to construction air emissions in the form of tailpipe exhaust and fugitive dust from material movement. Emissions of reactive organic gases (ROG), carbon monoxide (CO), oxides of nitrogen (NOx), sulfur dioxide (SO_2), particulate matter 10 microns in diameter or less (PM_{10}), and particulate matter 2.5 microns in diameter or less ($PM_{2.5}$) were estimated for on-site construction equipment and off-site worker commute and haul truck deliveries. Construction equipment emissions were estimated using Appendix D of the CalEEMod User's Guide (ENVIRON, 2013) for the year 2018. Emissions for worker commute and haul truck deliveries were

estimated using emission factors from EMFAC2011 for Humboldt County. It was assumed that all trips would originate from near Eureka, with an average round trip distance of 15 miles. Fugitive dust emissions associated with approximately 8,000 CY of material removal were estimated using methodology found in AP-42 Chapter 13.2.4.3 (EPA, 2006). The estimated maximum daily and project total criteria pollutant emissions are presented in Table 3-6, which shows that the expected construction air emissions from the project are less than significant. Appendix E presents the detailed calculations for the construction emission estimates.

TABLE 3-6
Maximum Daily and Annual Construction Emissions

Construction Emissions	Emissions					
	NO_x	CO	ROG	SO_2	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions (pounds per day) [a]	204	128	18.6	0.32	8.71	7.44
Maximum Annual Emissions (tons per year)	7.16	5.81	0.68	0.012	0.32	0.27
Significance threshold (tons per year) [b]	40	100	40	40	15	10
Significant impact?	No	No	No	No	No	No

[a] It was conservatively assumed that all construction equipment and vehicles could operate simultaneously on the worst-case day during the construction period.
[b] The NCUAQMD considers its Best Available Control Technology thresholds as significance thresholds for California Environmental Quality Act (CEQA) purposes (NCUAQMD,2010).

Emissions associated with the proposed project would be short term and the air quality impact would be less than significant. Demolition and soil removal equipment would be operated in accordance with manufacturers' specifications, which would prevent increased exhaust emissions caused by engine malfunctions. Furthermore, the proposed project would include the use of water trucks to control fugitive dust. Therefore, project activities would not violate an air quality standard, and the air quality impact would be less than significant. No significant adverse impacts are anticipated during project operation.

Greenhouse Gases. The framework for regulating GHG emissions in California is described under Assembly Bill (AB) 32. In 2006, the California State Legislature signed the Global Warming Solutions Act of 2006, or AB 32. This law requires the CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 427 million metric tons carbon dioxide equivalent (CO_2e) (ARB, 2007). Additionally, CARB published an interim guidance for assessing the significance of GHGs under CEQA in 2008, which indicates that GHG emissions for non-transportation-related sources of less than 7,000 metric tons of CO_2e per year should be presumed to have a less-than-significant-impact (CARB, 2008a). Carbon dioxide (CO_2) emissions account for approximately 90 percent of the statewide GHG emissions (CARB, 2007). Methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) emissions account for the remainder of the statewide GHG emissions (CARB, 2007).

Project impacts from GHG emissions were assessed by estimating the emissions of CO_2, CH_4, and N_2O from the project. Emissions of HFCs, PFCs, and SF_6 are not expected as a result of project activities, during either construction or operation. Emissions of CO_2 and CH_4 from construction equipment were estimated using Appendix D of the CalEEMod User's Guide (ENVIRON, 2013). Emissions of N_2O from construction equipment were estimated using fuel consumption estimates from the OFFROAD2011 model for the North Coast Air Basin and emission factors from Table 13.7 of The Climate Registry's (TCR) Default Emissions Factors (TCR, 2014). Emissions of CO_2 from worker commute, concrete truck deliveries, and haul truck deliveries were estimated using emission factors from EMFAC2011 for Humboldt County, California, while emissions of CH_4 and N_2O were estimated using emission factors from Table 13.5 of TCR's Default Emissions Factors (TCR,

2014). The estimated maximum daily and project total GHG emissions are presented in Table 3-7. Appendix A presents the detailed calculations for the construction emission estimates.

TABLE 3-7
Greenhouse Gas Air Emissions

Construction Year 2014	CO_2	N_2O	CH_4	CO_2e
Project Emissions (metric tons/project)	1,118	0.30	0.028	1,134
CARB Significance Threshold (metric tons)	-	-	-	7,000

Although GHG emissions would be emitted during the restoration project, the projected short-term increase in GHG emissions would be less than CARB's proposed threshold of 7,000 metric tons of CO_2e per year. Therefore, the addition of GHG emissions generated as a result of the proposed project would neither result in a significant impact on the environment nor conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. No impacts are anticipated during project operation.

3.3.14.4 Mitigation

No mitigation is required.

3.3.15 Noise

Although noise impacts are not specifically addressed in the CCA, noise impacts are addressed below.

3.3.15.1 Existing Setting

The property is bounded on the north by Humboldt Bay, on the west by the King Salmon community, on the east by Northwestern Pacific Railroad tracks, and on the south by King Salmon Avenue. East of the railroad property are US 101, rural parcels, and commercial development. South of King Salmon Avenue are wetland areas, the Humboldt Hill residential development, and timber-related port facilities.

Construction activities have been ongoing at the site for several years and have included demolition of Units 1 and 2, and construction of the HBGS. Demolition and decontamination of Unit 3 is ongoing. The majority of noise generated during the day is due to ongoing demolition activities. This noise is not discernible from traffic on US 101 at locations east of US 101. When local vehicular traffic is absent during the day (for demolition and HBGS operations) or night (for HBGS operations only), noise generated from the project site is audible at the King Salmon community.

3.3.15.2 Impacts

Project activities would be performed Monday through Friday from 7:00 a.m. to 5:30 p.m. Although construction activities associated with the project would be audible from adjacent recreational trails, the noise of construction would be partly blocked by Buhne Hill from most of the Shoreline Trail and would be temporary. Therefore, the proposed project would not significantly increase ambient noise levels.

Nighttime operations are not planned or anticipated; however, in the event that schedule or operational issues necessitate nighttime work, PG&E will consult the CCC in advance and submit any additional documentation required or proposed mitigation measures will be submitted to the CCC.

3.3.15.3 Mitigation

In the event that nighttime construction is needed, information would be provided to the CCC assessing anticipated nighttime noise levels and potential impacts. Specifically, evaluation of ambient noise monitoring data and implementing any necessary noise mitigation measures (e.g., sound baffles, operational limits, etc.), may be needed to ensure that any nighttime construction activities meet applicable County standards for nighttime noise limits. Information regarding noise associated with

nighttime construction would be provided to the CCC for review and approval prior to the start twenty-four hour operations.

3.3.16 Population and Housing

Although population and housing are not specifically addressed in the CCA, FSR plan Implementation activities would occur over an approximate 12-month period; therefore, potential population and housing impacts were reviewed.

In addition to staffing levels required to execute the proposed project, the staffing levels estimated for HBGS operations and the ongoing demolition activities were considered cumulatively. Considering FSR construction, HBGS (25 personnel), and ISFSI Support staffing (25 personnel), the peak staffing level of approximately 200 total personnel would be on site during FSR plan implementation, including the 150 construction workers on site to implement the FSR plan. The additional personnel needed for the FSR plan implementation would not exceed the peak staffing levels for the entire HBPP remediation program combined with HBGS construction of 500.

Project execution would generate additional employment and increased demand for regional and local goods and services. However, the length of time for the proposed project is estimated to be approximately 12 months, and while the increased employment would be beneficial to the region, it would be a temporary benefit. Additionally, the project would not result in impacts on local housing availability or encourage new housing to be constructed as a result of the temporary workers.

3.3.17 Solid Waste

Although solid waste impacts are not specifically addressed in the CCA, they are analyzed below to address the significant volumes of waste material that would be generated during the project's 12-month construction period.

3.3.17.1 Existing Setting

Currently, no active, permitted landfills exist in Humboldt County. The Humboldt Waste Management Authority is responsible for solid waste collection, transfer, and disposal in Humboldt County and operates transfer stations as the only active solid waste management sites in the county. Solid waste collected by the Humboldt Waste Management Authority is first taken to the Hawthorne Street Transfer Station where it is directed to either the Anderson Landfill in Anderson, California (approximately 165 miles from the HBPP site) or the Dry Creek Landfill in Medford, Oregon (approximately 200 miles from the HBPP site). Both the Anderson Landfill and the Dry Creek Landfill have adequate capacity to handle and dispose of solid waste generated by project activities. The above landfills do not accept hazardous wastes. Alternate landfill facilities may be used depending on the characteristics of the waste generated and the costs for transport and disposal.

3.3.17.2 Impacts

All solid and liquid wastes generated by the proposed project must be classified as either hazardous or nonhazardous. The contractor, or PG&E's environmental coordinator, would oversee the classification of the waste generated at the project site and would provide information needed to identify the appropriate disposal facility.

PG&E's contractor would update the existing project waste management plan to include the proposed project. The waste management plan would include jobsite waste guidelines, waste characterization procedures, waste profiles, storage and disposal procedures, waste recycling specifications, and a directory of local construction waste recyclers.

All excavated materials are assumed to be potentially contaminated and are included in listed volume estimates for regulated wastes. Waste generated would fall into one of the following seven categories:

- Radiologically contaminated waste
- Mixed waste (both radiologically and hazardous constituents)
- Nonhazardous construction debris
- Universal waste
- Non-RCRA hazardous
- RCRA hazardous
- Toxic Substances Control Act-regulated material

Nonhazardous Waste. Nonhazardous waste would likely result from the proposed project. As discussed below, waste management efforts would focus on reducing the quantity of waste generated and on reusing or recycling wastes. Offsite disposal would only be used to dispose of residual wastes that cannot be reused, recycled, or treated. All demolition and excavation wastes would be direct-loaded to trucks if characterization is complete or temporarily stockpiled for characterization.

Wastes would be hauled by truck from the site to the appropriate disposal facility. The trucks would be loaded at the site either from temporary stockpiles or directly from the demolition activities. Water spraying might be implemented to suppress potential dust while loading. Trucks would be covered with tarps prior to leaving the site if there is a potential for airborne debris in the waste load.

3.3.17.3 Mitigation

The handling and management of waste generated by project activities would follow the hierarchical approach of source reduction, recycling, treatment, and disposal. The first priority would be to reduce the quantity of waste generated through pollution prevention methods (such as high-efficiency cleaning methods). The next level of waste management would involve reusing or recycling wastes (such as concrete). For wastes that cannot be recycled, treatment would be used, if possible, to make the waste nonhazardous (such as neutralization). Finally, offsite disposal would be used to dispose of residual wastes that cannot be reused, recycled, or treated.

When possible, waste streams would be recycled, including metals, asphalt, and concrete. The following facilities have sufficient capacity to recycle the expected waste streams generated during demolition:

- Simms Metals (Richmond, California) – metal recycling facility
- Clean Harbors (San Jose, California) – asphalt and concrete recycling facility

3.3.18 Industrial Development

The proposed project would be located within the existing industrially developed HBPP site and would not involve division of land or development of a new hazardous industrial or visitor-serving facility (CCA Section 30250). The project would involve the expansion of facilities at an existing industrial facility, with the retention of the existing Environmental Count Room for ISFSI personnel and the Waste Management Building as part of the HBGS, and consistent with CCA Section 30260 (“Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division.”)[9]

The project will support the decommissioning of the former HBPP power generation facilities and would not involve the following: (1) development of a new industrial facility; (2) development or increased use of a tanker facility; (3) oil and gas development; (4) expansion or development of refineries or petrochemical

[9] The Waste Management Building will be under the jurisdiction of the CEC as it will serve primarily the HBGS. PG&E will submit a Petition to Amend the HBGS CEC license as part of the implementation of the FSR plan for this part of the facility.

facilities; (5) development of a new thermal electric generating plant; or (6) pipeline transport of oil. The proposed project would not have the potential to result in impacts related to industrial development as described in Sections 30260 through 30265.5 of the CCA.

3.4 Summary and Conclusions

The proposed project would result in net beneficial impacts on the population, region, and environment through restoration of areas formerly used for the HBPP. Although project activities would temporarily increase the amount of work performed on the project site, the work proposed is consistent with the work that was authorized in the CDP E-09-010 and the other decommissioning CDPs. Mitigation measures, similar to measures currently being implemented, would be used to reduce resulting impacts from these proposed additional activities. After project activities are complete, there would be no additional resulting impacts on the described resource areas.

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Appendix A
FSR Plan Drawings

Appendix A – Final Site Restoration Plan Drawings

Note: The Final Site Restoration Plan Drawings are undergoing final revision based on recent discussion with the CCC Staff and will be provided at a later date.

Appendix B
Special-Status Species

APPENDIX B

Special-Status Species Evaluated

TABLE B-1

Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
Abronia umbellata ssp. *breviflora* (pink sand-verbena)	–/–/1B.1[2]	Coastal dunes; 0–10 m (0–33 ft) (June–October)	CNDDB; CNPS	**None**: No habitat present.
Angelica lucida (sea watch)	–/–/4.2	Coastal bluff scrub, coastal dunes, coastal scrub, and coastal salt marshes and swamps; 0–150 m (0–492 ft) (May–September)	CNPS	**Low:** Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Anomobryum julaceum (slender silver moss)	–/–/4.2	Damp rock and soil on outcrops, usually on roadcuts in broadleafed upland forest, lower montane coniferous forest, and North Coast coniferous forest; 100–1000 m (328–3,281 ft) (n/a—moss)	CNDDB; CNPS	**None**: Outside of elevation range.
Astragalus pycnostachyus var. *pycnostachyus* (coastal marsh milk-vetch)	–/–/1B.2[2]	Mesic coastal dunes, coastal scrub, coastal salt marshes and swamps, wetlands and streamsides; 0–30 m (0–98 ft) (April–October)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Bryoria pseudocapillaris (false gray horsehair lichen)	–/–/3.2	Usually on conifers in coastal dunes and North Coast coniferous forest within the immediate coast; 0–90 m (0–295 ft); (n/a—lichen)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Bryoria spiralifera (twisted horsehair lichen)	–/–/1B.1	North Coast coniferous forest within the immediate coast. Found on conifers in coastal dune forest; 0–30m (0–98 ft) (n/a—lichen)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights. One of the two largest populations occurs in coastal dunes of Samoa/Manila peninsula in Humboldt County, CA
Cardamine angulata (seaside bittercress)	–/–/2B.1	Wet areas, streambanks in redwood forests and mixed evergreen forests; 65–915 m (213–3,002 ft) (April–June)	CNDDB; CNPS	**None**: Outside of elevation range.
Carex arcta (northern clustered sedge)	–/–/2B.2	Bogs and fens, North Coast coniferous forest; 60–1,400 m (197–4,593 ft) (June–September)	CNDDB; CNPS	**None**: Outside of elevation range.

TABLE B-1
Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
Carex leptalea (bristle-stalked sedge)	–/–/2B.2	Bogs and fens, mesic meadows and seeps, marshes and swamps; 0–700 m (0–229 ft) (March–July)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Carex lyngbyei (Lyngbye's sedge)	–/–/2B.2	Brackish or freshwater marshes and swamps; 0–10 m (0–33 ft) (April–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Carex praticola (northern meadow sedge)	–/–/2B.2	Moist to wet meadows and seeps, coastal prairie, and North Coast coniferous forest; 0–3,200 m (0–10,499 ft) (May–July)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, Intake Canal, Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights.
Castilleja affinis ssp. *litoralis* (Oregon coast paintbrush)	–/–/2B.2	Coastal bluff scrub, coastal dunes, coastal scrub/sandy; 15–100 m (49–328 ft) (June)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond
Castilleja ambigua ssp. *humboldtiensis* (Humboldt Bay owl's-clover)	–/–/1B.2[2]	Marshes and swamps; 0–3 m (0–10 ft) (April–August)	CNDDB; CNPS	**Moderate**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal; historically documented occurrence within 1 mile of project along King Salmon Slough
Chloropyron maritimum ssp. palustre (Point Reyes bird's-beak)	–/–/1B.2[2]	Marshes and swamps; 0–10 m (0–33 ft) (June–October)	CNDDB; CNPS	**Moderate**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal; known CNDDB occurrence within 1 mile of project along King Salmon Slough
Clarkia amoena ssp. *whitneyi* (Whitney's farewell-to-spring)	–/–/1B.1	Coastal bluff scrub, coastal scrub; 10–100 m (33–328 ft) (June-August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond
Collomia tracyi (Tracy's collomia)	–/–/4.3	Lower montane coniferous forest; 300–2,100 m (984–6,890 ft) (June–July)	CNPS	**None**: Outside of elevation range.
Erysimum menziesii ssp. *eurekense* (Humboldt Bay wallflower)	FE/CE/1B.1	Coastal dunes; 0–10 m (0–33 ft) (March–October)	CNDDB; CNPS	**None**: No habitat present.

TABLE B-1
Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
Erythronium revolutum (coast fawn lily)	–/–/2B.2	Bogs and fens, broadleafed upland forest, mesic North Coast coniferous forest, streambanks; 0–1,600 m (0–5,249 ft) (March–August)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Fissidens pauperculus (minute pocket moss)	–/–/1B.2[3]	North Coast coniferous forest with damp soil; 10–1,024 m (33–3,360 ft) (n/a—moss)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Gilia capitata ssp. *pacifica* (Pacific gilia)	–/–/1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland; 5–869 m (16–2,851 ft) (April–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in Buhne Slough salt marsh and Duck Pond
Gilia millefoliata (dark-eyed gilia)	–/–/1B.2[2]	Coastal dunes; 2–20 m (7–66 ft) (April–July)	CNDDB; CNPS	**None**: No habitat present.
Glehnia littoralis ssp. *leiocarpa* (American glehnia)	–/–/4.2	Coastal dunes; 0–20 m (0–66 ft) (May–August)	CNPS	**None**: No habitat present.
Hesperevax sparsiflora var. *brevifolia* (short-leaved evax)	–/–/1B.2[2]	Coastal bluff scrub, coastal dunes; 0–215 m (0–705 ft) (March–June)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond
Hesperolinon adenophyllum (glandular western flax)	–/–/1B.2	Chaparral, valley grassland, foothill woodland, affinity to serpentine soil; 150–1,315 m (492–4,314 ft) (May–August)	CNPS	**None**: Outside of elevation range.
Lathyrus japonicus (seaside pea)	–/–/2B.1	Coastal dunes; 1–30 m (3–98 ft) (May–August)	CNDDB; CNPS	**None**: No habitat present.
Lathyrus palustris (marsh pea)	–/–/2B.2	Bogs and fens, marshes and swamps, coastal prairies, coastal scrub; 1–100 m (3–328 ft) (March–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Layia carnosa (beach layia)	FE/CE/1B.1	Coastal dunes, Coastal scrub (sandy); 0–60 m (0–197 ft.) (March–July)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond
Lilium kelloggii (Kellogg's lily)	–/–/4.3	Openings and roadsides in lower montane coniferous forest and North Coast coniferous forest; 3–1,300 m (10–4,265 ft) (May–August)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview

TABLE B-1
Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
				Heights
Lilium occidentale (western lily)	FE/CE/1B.1	Marshes and swamps, bogs and fens, coastal scrub, and coastal prairie; edges of sphagnum bogs and forest openings along margins of ephemeral ponds and stream channels; 2–185 m (7–607 ft) (June–July)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Lilium rubescens (redwood lily)	–/–/4.2	Sometimes serpentinite and roadsides broadleafed upland forest, chaparral, lower montane coniferous forest, North Coast coniferous forest, and upper montane coniferous forest; 30–1,910 m (98–6,266 ft) (April–September)	CNPS	**None**: Outside of elevation range.
Listera cordata var. *nephrophylla* (heart-leaved twayblade)	–/–/4.2	Bogs and fens, lower montane coniferous forest, North Coast coniferous forest; 5–1,370 m (16–4,495 ft) (February–July)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Lycopodium clavatum (running pine)	–/–/4.1	Openings, edges, and roadsides of mesic lower montane coniferous forest, marshes and swamps, and mesic North Coast coniferous forest; 45–1,225 m (148–4,019 ft) (June–September)	CNDDB; CNPS	**None**: Outside of elevation range.
Mitellastra caulescens (leafy-stemmed miterwort)	–/–/4.2	Mesic, sometimes roadsides in broadleafed upland forest, lower montane coniferous forest, meadows and seeps, and North Coast coniferous forest; 5–1,700 m (16–5,577 ft) (March–October)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Monotropa uniflora (ghost-pipe)	–/–/2B.2	Broadleaf upland forest, North Coast coniferous forest; 10–550 m (33–1,804 ft) (June–September)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Montia howellii (Howell's montia)	–/–/2B.2	Meadows and seeps, North Coast coniferous forest, mesic vernal pools, and roadsides; 0–730 m (0–2,395 ft) (March–May)	CNDDB; CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Oenothera wolfii (Wolf's evening-primrose)	–/–/1B.1[2]	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest/sandy, usually	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck

TABLE B-1
Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
		mesic; 3–800 m (10–2,625 ft) (May–October)		Pond
Packera bolanderi var. *bolanderi* (seacoast ragwort)	–/–/2B.2	Coastal scrub, North Coast Coniferous forest/sometimes along roadsides; 30–915 m (98–3,002 ft) (April–May)	CNDDB; CNPS	**None**: Outside of elevation range.
Pityopus californica (California pinefoot)	–/–/4.2	Mesic broadleafed upland forest, lower montane coniferous forest, North Coast coniferous forest, upper montane coniferous forest; 15–2,225 m (49–7,300 ft) (March–August)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Pleuropogon refractus (nodding semaphore grass)	–/–/4.2	Mesic lower montane coniferous forest, meadows and seeps, North Coast coniferous forest, riparian forest; 0–1,600 m (0–5,249 ft) (March–August)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Polemonium carneum (Oregon polemonium)	–/–/2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest; 0–1,830 m (0–6,004 ft) (April–September)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond
Puccinellia pumila (dwarf alkali grass)	–/–/2B.2	Coastal salt marshes and swamps; 1–10 m (3–33 ft) (July)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Ribes laxiflorum (trailing black currant)	–/–/4.3	Sometimes roadsides in North Coast coniferous forest; 5–1,395 m (16–4,577 ft) (March–August)	CNPS	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Sidalcea malachroides (maple-leaved checkerbloom)	–/–/4.2	Often in disturbed areas in broadleafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, and riparian woodland; 0–730 m (0–2,395 ft) (March–August)	CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Sidalcea malviflora ssp. *patula* (Siskiyou checkerbloom)	–/–/1B.2	Coastal bluff scrub, coastal prairie, North Coast coniferous forest/often roadcuts; 15–878 m (49–2,881 ft) (May–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights

TABLE B-1
Special-status plants evaluated for the likelihood to occur in the proposed project area.

Species name	Status[1] Federal/ State/ CRPR	Habitat associations (blooming period)	Source	Likelihood of occurrence (none, low, moderate, high)
Sidalcea oregana ssp. *eximia* (coast checkerbloom)	–/–/1B.2	Meadows, wetland-riparian; 5–1,340 m (16–4,396 ft) (June–August)	CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Spergularia canadensis var. *occidentalis* (western sand-spurrey)	–/–/2B.1	Coastal salt marshes and swamps; 0–3 m (0–19 ft) (June–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh, Duck Pond, and Intake Canal
Usnea longissima (Methuselah's beard lichen)	–/–/4.2	North Coast coniferous forest, broadleafed upland forest. 0–610 m (0–2000 ft) (n/a—lichen)	CNDDB	**Low:** Suitable habitat is present in the Buhne Point Vista, Tsunami Assembly Area, Shoreline Trail, and Bayview Heights
Viola palustris (alpine marsh violet)	–/–/2B.2	Coastal bogs and fens, coastal scrub; 0–150 m (0–492) (March–August)	CNDDB; CNPS	**Low**: Suitable habitat is present in the Buhne Slough salt marsh and Duck Pond

[1] **Status:**

Federal

FE Endangered
– No federal status

State

CE Endangered
– No state status

California Rare Plant Rank

1B: Plants Rare, Threatened, or Endangered in California and elsewhere
2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list

Threat Ranks

- 0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- 0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- 0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Invertebrates					
Black abalone (*Haliotis cracherodii*)	FE/–	Point Arena in northern California to Bahia Tortugas and Isla Guadalupe, Mexico	Intertidal and shallow subtidal rocks, in areas of moderate to heavy surf action	USFWS	**None**: Outside of current distribution.
Fish					
North American green sturgeon—Pacific-northern (Northern and Southern Distinct Population Segments [DPS]) (*Acipenser medirostris*)	FT/SSC critical habitat	San Francisco, San Pablo, Suisun, and Humboldt bays; Sacramento-San Joaquin Delta, Sacramento and Klamath rivers	Large mainstem rivers with cool water and cobble, clean sand, or bedrock for spawning.	CNDDB NMFS[2]	**Low**: Known to occur in the North Humboldt Bay (area of the bay north of the harbor entrance). Unlikely to occur in the intake canal. Critical habitat, which includes all tidally influenced areas of Humboldt Bay (including tributaries) up to the elevation of mean higher high water, is present.
Tidewater goby (*Eucyclogobius newberryi*)	FE/SSC critical habitat	Tillas Slough (mouth of the Smith River, Del Norte County) to Agua Hedionda Lagoon (northern San Diego County).	Coastal lagoons and the uppermost zone of brackish large estuaries; prefer sandy substrate for spawning, but can be found on silt and rocky mud substrates; can occur in water up to 4 m (15 ft) in lagoons and within a wide range of salinity (0–42 ppt).	CNDDB USFWS	**None**: Habitat not present in intake canal. Surveys conducted in 2007 within Buhne Slough, near the project area, did not identify presence (Stillwater Sciences 2007). Survey in neighboring unnamed slough did not identify presence (USFWS 2014). Individuals were documented in 2006 in the vicinity of Swain Slough and Elk River, about 1.5 mi from the project area (CDFW 2015). Designated critical habitat is located in slough habitat about 1.6 km (1 mi) north and about 3 km (2 mi) south of the project area.

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Eulachon (Southern DPS) (*Thaleichthys pacificus*)	FT/SSC critical habitat	Skeena River in British Columbia (inclusive) south to the Mad River in Northern California (inclusive)	An anadromous fish that historically used the Klamath River estuary and lowest portions of the river to spawn. Few to no individuals currently use the estuary. Most of their life is spent in the ocean.	NMFS[2]	**None**: Outside of current distribution. Last observed in the Mad River in 1977 (CNDDB 2013), more than 10 miles north of the project area. Proposed critical habitat is located about 24 km (15 mi) north on the Mad River.
Longfin smelt (*Spirnichus thaleichthys*)	FC/ST	San Francisco estuary from Rio Vista or Medford Island in the Delta as far downstream as South Bay; concentrated in Suisun, San Pablo, and North San Francisco bays; populations in Humboldt Bay, Eel River estuary, and Klamath River estuary	Adults in large bays, estuaries, and nearshore coastal areas; migrate into freshwater rivers to spawn; salinities of 15–30 ppt	CNDDB	**Moderate**: Rearing habitat for juveniles and/or adults is present year-round in the Fisherman's Channel and Residential Finger Channels. Larvae prefer areas where fresh and saltwater mix for rearing, which does not occur in the intake canal. Spawning habitat is not present, since this species spawns in freshwater streams. Yearlings and adults move into freshwater to spawn from January through March. Documented throughout Humboldt Bay (CDFW 2015).
Coastal cutthroat trout (*Oncorhynchus clarki clarki*)	–/SSC	Small, low-gradient coastal streams and estuaries. Shaded streams with water temperatures below 18°C (64°F) and small gravel for spawning. May enter intertidal areas that contain brackish waters.	From northern Oregon to the Eel River, California	CNDDB	**None**: Coastal cutthroat trout documented in tributaries to Humboldt Bay (CDFW 2015). No coastal cutthroat trout have been documented in the project area. No tributaries flow into the project area.

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Coho salmon (southern Oregon/ northern California Evolutionary Significant Unit ESU]) (*Oncorhynchus kisutch*)	FT/– critical habitat	Punta Gorda north to the Oregon border	Spawn in coastal streams and large mainstem rivers (i.e., Klamath/Trinity Rivers) in riffles and pool tails-outs and rear in pools > 1 m (3 ft) deep with overhead cover with high levels oxygen and temperatures of 10–15°C (50–59°F).	NMFS[2]	**Low**: Smolts prefer deep water channels and presence in intake canal is unlikely (NMFS 2014). Adult spawning habitat is located in freshwater. Designated critical habitat is present.
Steelhead (Northern California DPS) (*Oncorhynchus mykiss*)	FT/SSC (SSC refers to the summer-run only) critical habitat	Russian River north to Redwood Creek (Humboldt County)	Inhabits small coastal streams to large mainstem rivers with gravel-bottomed, fast-flowing habitat for spawning. However, habitat criteria for different life stages (spawning, fry rearing, juvenile rearing) are can vary significantly.	NMFS[2]	**Low**: Smolts prefer deep water channels and presence in intake canal is unlikely (NMFS 2014). Adult spawning habitat is located in freshwater. Designated critical habitat is present.
Chinook salmon (California coastal ESU) (*Oncorhynchus tshawytscha*)	FT/– critical habitat	Russian River (Sonoma County) north to Redwood Creek (Humboldt County)	Coastal streams; spawns in gravel riffles	NMFS[2]	**Low**: Smolts prefer deep water channels and presence in intake canal is unlikely (NMFS 2014). Adult spawning habitat is located in freshwater. Designated critical habitat is present.
Amphibians					
Northern red-legged frog (*Rana aurora*)	–/SSC	From Mills Creek in Mendocino County to Oregon border	Humid forests, woodlands, grasslands, and streamsides usually near dense cover. Generally near permanent water, but can be found far from water in damp woods and meadows during non-breeding season.	CNDDB	**High**: Egg masses, juveniles, and adults have been documented in the Buhne Preserve within permanent ponded water sources (Stillwater Sciences and Dains 2013), in the drainage south east of the Duck Pond, and are common occurrences on HBPP property.

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Pacific tailed frog (*Ascaphus truei*)	–/SSC	Coastal Mendocino County north to the Oregon border, with an isolated population in Shasta region	In and adjacent to cold, clear, moderate- to fast-flowing, perennial mountain streams in conifer forest	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 8 km (5 mi) from the project area.
Foothill yellow-legged frog (*Rana boylii*)	–/SSC	From the Oregon border along the coast to the Transverse Ranges, and south along the western side of the Sierra Nevada Mountains to Kern County; a possible isolated population in Baja California	Shallow tributaries and mainstems of perennial streams and rivers, typically associated with cobble or boulder substrate	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 8 km (5 mi) from the project area (CNDDB 2015).
Southern torrent salamander (*Rhyacotriton variegatus*)	–/SSC	Coastal drainages from near Point Arena in Mendocino County to the Oregon border	Coastal redwood, Douglas-fir, mixed conifer, montane riparian and montane hardwood-conifer habitats. Seeps and small streams in coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats.	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 8 km (5 mi) from the project area (CNDDB 2015).
Reptiles					
Loggerhead turtle (*Caretta caretta*)	FT/–	Warm waters of the Pacific coast, primarily from the Channel Islands south; does not nest in California.	Uses the open ocean near-shore zone; nests on high energy, relatively narrow, steep coarse-grained beaches.	NMFS[2]	**None**: Habitat not suitable.
Green sea turtle *Chelonia mydas (incl. agassizi)*	FT/–	Warm waters of the Pacific coast, primarily from San Diego south. Uncommon along the California coast; does not nest in California.	Uses convergence zones in the open ocean and benthic feeding grounds in coastal areas; nests on sandy ocean beaches	NMFS[2]	**None**: Habitat not suitable.
Leatherback sea Turtle *Dermochelys*	FE/– Critical	Temperate and cool waters of the Pacific coast; most sightings in California are from	Pelagic, though also forages near coastal waters	NMFS[2]	**None**: Habitat not suitable.

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
coriacea	habitat	boats out at sea; have been observed in open ocean near San Diego, Santa Barbara, Ventura, San Mateo, and Santa Cruz counties; does not nest in California			
Olive (=Pacific) ridley sea turtle *Lepidochelys olivacea*	FT/–	Warm waters of the Pacific coast, primarily from southern California south; does not nest in California	Well out to sea in pelagic zone as well as coastal areas, including bays and estuaries; nests on sandy ocean beaches	NMFS[2]	**None**: Habitat not suitable.
Western pond turtle (*Actinemys marmorata*)	–/SSC	From the Oregon border along the coast ranges to the Mexican border, and west of the crest of the Cascades and Sierras	Ponds, marshes, rivers, streams, and irrigation ditches with abundant vegetation, and either rocky or muddy bottoms, in woodland forest and grasslands. Below 1,830 m (6,000 ft) elevation. Basking sites are located on logs, rocks, cattail mats, and exposed banks and egg-laying sites are located on suitable upland habitats (grassy open fields) up to 500 m (1,640 ft) from water. May enter brackish water or seawater.	CNDDB	**None**: Habitat not suitable as there are limited basking and upland egg laying sites. Closest documented location is greater than 6 km (4 mi) from the proposed project area.
Birds					
Short-tailed albatross (*Phoebastris albatrus*)	FE/SSC	Pacific Ocean (nests in Japan)	Feeds in north Pacific	USFWS	**None**: Habitat not suitable.
Marbled murrelet (*Brachyramphus marmoratus*)	FT/– critical	Nesting marbled murrelets in California mostly concentrated on coastal waters near Del Norte and Humboldt counties, and in	Most time spent on the ocean; nests inland in old-growth conifers with suitable platforms, especially redwoods near coastal areas.	USFWS	**Low**: No suitable foraging or nesting habitat within the general project area; however, daily migration corridor is present in the area based on occurrences documenting multiple individuals flying

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
	habitat	lesser numbers near San Mateo and Santa Cruz counties; winter throughout nesting range, and in small numbers in southern California.			out of the bay to the ocean (eBird 2007). Critical habitat located more than 9 km (6 mi) from the project area.
Xantus's murrelet (*Synthliboramphus hypoleucus*)	FC/–	Range extends from Mexico, west coast United States and Canada. Nests in the Channel Islands in southern California and on islands off the coast of Baja California.	Most time spent on the ocean.	USFWS	**None**: No suitable nesting or foraging habitat in the project area.
Northern spotted owl (*Strix occidentalis caurina*)	ST/SCT, SSC critical habitat	Northwestern California south to Marin County, and southeast to the Pit River area of Shasta County	Usually found in mature and old-growth coniferous forest with dense multi-layered structure	USFWS	**None**: Habitat not suitable. Critical habitat located more than 25 km (16 mi) from the project area.
Bald eagle (*Haliaeetus leucocephalus*)	–/SE	Permanent resident and uncommon winter migrant, found nesting primarily in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties	Large bodies of water or rivers with abundant fish, uses adjacent snags or other perches; nests and winter communal roosts in advanced-successional conifer forest within 1.6 km (1 mi) of open water	CNDDB	**Moderate**: Foraging habitat present in Humboldt Bay. Closest documented nesting location is about 4 mi from proposed project area (CDFW 2015).
Bank swallow (*Riparia riparia*)	–/ST	Summer resident; occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American rivers; and in the plains east of the Cascade Range in Modoc,	Nests in vertical bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam. Forages over lakes, ponds, rivers and streams.	CNDDB	**None**: Habitat not suitable. Closest location within CNDDB is greater than 8 km (5 mi) from the proposed project area (CDFW 2015).

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
		Lassen, and northern Siskiyou counties; small populations near the coast from San Francisco County to Monterey County			
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT (Pacific coastal population) /– critical habitat	Nests in locations along the California coast, including the Eel River in Humboldt County; nests in the interior of the state in the Central Valley, Klamath Basin, Modoc Plateau, and Great Basin, Mojave, and Colorado deserts; winters primarily along coast	Barren to sparsely vegetated beaches, barrier beaches, salt-evaporation pond levees, and shores of alkali lakes; also nests on gravel bars in rivers with wide flood plains; needs sandy, gravelly, or friable soils for nesting	USFWS CNDDB	**Low**: No nesting or foraging habitat is present in the Fisherman's Channel or Residential Finger Channels; however, nesting may occur on nearby sandy beaches. Critical habitat is located about 1.6 km (1 mi) west of the proposed project area on the South Spit (land south of the harbor entrance).
California clapper rail (*Rallus longirostris obsoletus*)	FE/SE	Predominantly in the marshes of the San Francisco estuary: South San Francisco Bay, North San Francisco Bay, San Pablo Bay, and sporadically throughout the Suisun Marsh area east to Browns Island	Salt and brackish water marshes, typically dominated by pickleweed (*Salicornia virginica*) and Pacific cordgrass (*Spartina foliosa*)	CNDDB	**None**: No habitat present and outside of current distribution. Last observed in 1932 (CDFW 2015).
Western yellow-billed cuckoo (*Coccyzus americanus*)	FT/SE	Breeds in limited portions of the Sacramento River and the South Fork Kern River; small populations may nest in Butte, Yuba, Sutter, San Bernardino, Riverside, Inyo, Los Angeles, and Imperial counties	Valley foothill and desert riparian habitats; nests in open woodland with clearings and low, dense, scrubby vegetation	USFWS CNDDB	**None**: No habitat present. Rare recent observations have documented an individual at the Eel River Estuary (T. Leskiw, USDA Forest Service [retired], pers. comm., 2012).
Tricolored blackbird (*Agelaius tricolor*)	–/SE	Permanent resident, but makes extensive migrations both in breeding season and winter; common locally throughout Central Valley and	Feeds in grasslands and agriculture fields; nesting habitat components include open accessible water, a protected nesting substrate (including flooded or thorny	CNDDB	**Low**: May inhabit coastal scrub, but preferred habitat is in grasslands and agricultural fields. Largest population centers in central and southern California. Closest location within CNDDB is greater

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
		in coastal areas from Sonoma County south	vegetation), and a suitable nearby foraging space with adequate insect prey		than 8 km (5 mi) south of the proposed project area (CDFW 2015).
Mammals					
Sonoma tree vole *Arborimus pomo*	–/SSC	North Coast fog belt between the northern Oregon border and Sonoma County	Associated nearly exclusively with Douglas-fir trees and occasionally grand fir, hemlock, or spruce trees	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 8 km (5 mi) from the project area.
Townsend's big-eared bat (*Corynorhinus townsendii*)	–/SCT, SSC	Throughout California, found in all but subalpine and alpine habitats, details of distribution not well known	Most abundant in mesic habitats; also found in oak woodlands, desert, vegetated drainages, caves or cave-like structures (including basal hollows in large trees, mines, tunnels, and buildings)	CNDDB	**Low**: May roost in relatively dark, semi-enclosed buildings, but are easy to detect. Have not been observed in the HBPP. Closest documented location is greater than 8 km (5 mi) from the project area (CNDDB 2013).
Pallid bat *Antrozous pallidus*	–/SSC	Throughout California except for elevations greater than 3,000 m (9,842 ft) in the Sierra Nevada	Roosts in rock crevices, tree hollows, mines, caves, and a variety of vacant and occupied buildings; feeds in a variety of open terrestrial habitats	CNDDB	**Low**: Daily migration habitat may be present in project area. Roosting and foraging habitat may be present in man-made structures and open terrestrial habitats. The most recent CNDDB occurrence is from 1924 and is greater than 16 km (10 mi) from the proposed project area; however, individuals have been readily documented in the redwood/coastal fog belt (W. Rainey, pers. comm., 2013).

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Humboldt marten *Martes americana humboldtensis*	–/SSC	Coastal redwood zone from the Oregon border south to Fort Ross, Sonoma County	Mid- to advanced-successional stands of conifers with complex structure near the ground and dense canopy closure	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 16 km (10 mi) from the proposed project area.
Pacific fisher *Martes pennanti (pacifica)* West Coast DPS	FPT/SCT, SSC Proposed critical habitat	Northern Coast Range and Klamath Province, and the southern Sierra Nevada	Advanced successional conifer forests, with complex forest structure being more important than tree species; den in hollow trees and snags	CNDDB	**None**: Habitat not suitable. Closest documented location is greater than 19 km (12 mi) from the proposed project area.
Steller (=northern) sea-lion *Eumetopias jubatus*	FT/– Critical habitat	Coastal waters of California	Colder waters; haul outs and rookeries usually consist of beaches, ledges, or rocky reefs	NMFS[2]	**None**: Habitat not suitable. Critical habitat located about 48 km (30 mi) south of the proposed project area at Sugarloaf Island, Cape Mendocino.
Sei whale *Balaenoptera borealis*	FE/–	Pacific Ocean	Deep ocean waters far from the coastline	NMFS[2]	**None**: Habitat not suitable.
Blue whale *Balaenoptera musculus*	FE/–	Pacific Ocean	Deep ocean offshore waters; also can be found in coastal waters	NMFS[2]	**None**: Habitat not suitable.
Fin whale *Balaenoptera physalus*	FE/–	Pacific Ocean	Deep ocean waters	NMFS[2]	**None**: Habitat not suitable.
Humpback whale *Megaptera novaengliae*	FE/–	Pacific Ocean	Deep ocean waters	NMFS[2]	**None**: Habitat not suitable.
Sperm whale *Physeter microcephalus*	FE/–	Pacific Ocean	Deep ocean waters	NMFS[2]	**None**: Habitat not suitable.

TABLE B-2
Special-status fish and wildlife species evaluated for the likelihood to occur in the project area.

Species name	Status[1] Federal/ State	Distribution	Habitat associations	Source	Likelihood of occurrence (none, low, moderate, high)
Killer whale (Southern Resident DPS) (*Orcinus orca*)	FE/– Critical habitat	Pacific Ocean	Coastal waters and bays	USFWS	**None**: Habitat not suitable within the Project area. Low likelihood of foraging and migratory habitat within Humboldt Bay based on a single documented occurrence in the harbor entrance. Critical habitat in Washington; potential project impacts on fisheries (prey base) would not affect populations of salmonids within critical habitat.

[1] **Status: Federal State**

[2] Species identified from the USFWS query, but is listed by NMFS.

FE	Endangered	SE	Endangered
FT	Threatened	ST	Threatened
FC	Candidate	SSC	Considered a species of special concern by CDFW
–	No federal status	–	No state status

SCT – state candidate threatened
FPT – federal proposed threatened

Appendix C
Biological Resources Mitigation Plan

APRIL 2015

Biological Mitigation and Monitoring Plan for the Humboldt Bay Power Plant Final Site Restoration Project

PREPARED FOR

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Cover photos: Photos taken by Stillwater Sciences 2013-2015. Mit-B pond (top left), ruby-crowned kinglet in Rest-1 (top right), Duck Pond (bottom right), and Rest-1 (bottom left).

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1 INTRODUCTION AND BACKGROUND

1.1 Project Description and Proponent

Pacific Gas and Electric Company (PG&E) is decommissioning the Humboldt Bay Power Plant (HBPP), a 75-acre (ac) site near King Salmon, Humboldt County, California. The HBPP consisted of two steam generating units (Units 1 and 2) and a boiling water nuclear reactor (Unit 3). PG&E operated the HBPP between 1956 and 2010. In 2010, the Humboldt Bay Generating Station (HBGS), located on the same property, began operation to replace the former generation capacity of Units 1, 2, and 3. PG&E has prepared a Final Site Restoration plan project description (FSR plan) which includes the following components:

- Reconfigure those portions of the site that are needed for on-going and future utility operational uses of the property.
- Implement biological resources mitigation prescribed in previous California Coastal Commission (CCC) permit proceedings or mitigation for the impacts related to implementing the FSR plan, such as those resulting from the creation of new wetlands adjacent to existing wetlands.
- Restore to pre-existing conditions those portions of the property that are not identified for ongoing utility operations as described in previous CCC permits.
- Reroute or repair drainage, establish new stormwater detention basins, and grade the site to maximize implementation of Low Impact Development (LID) measures to minimize potential offsite stormwater impacts.
- Reroute, repair, or remove communications and other infrastructure on property as needed.
- Remediate contaminated soil in areas that involve FSR construction and that were not previously permitted by the CCC and are not in wetlands. (Soil remediation in any wetland areas would be addressed under a separate plan.)

Implementation of the FSR plan will hereafter be referred to as the Project.

1.2 Project Location

The HBPP property is located at 1000 King Salmon Avenue in King Salmon, CA (Figure 1). It is located in unincorporated Humboldt County approximately 3 miles south of the City of Eureka. The HBPP property is bordered to the north by Humboldt Bay, to the south and east by diked former salt marsh, and to the west by the residential and commercial community of King Salmon. The survey area is located in Section 8 of Township 4 North, Range 1 West, of the Fields Landing, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle at approximate latitude 40°44’28.77”N and longitude 124°12’35.07”W. The property area ranges from approximately -10 to 64 feet (ft) above mean sea level. It can be accessed via the King Salmon Avenue exit off of U.S. Highway 101, heading west on King Salmon Avenue, and turning right into the HBPP Bravo Road entrance. Access is by permission of PG&E HBPP security only.

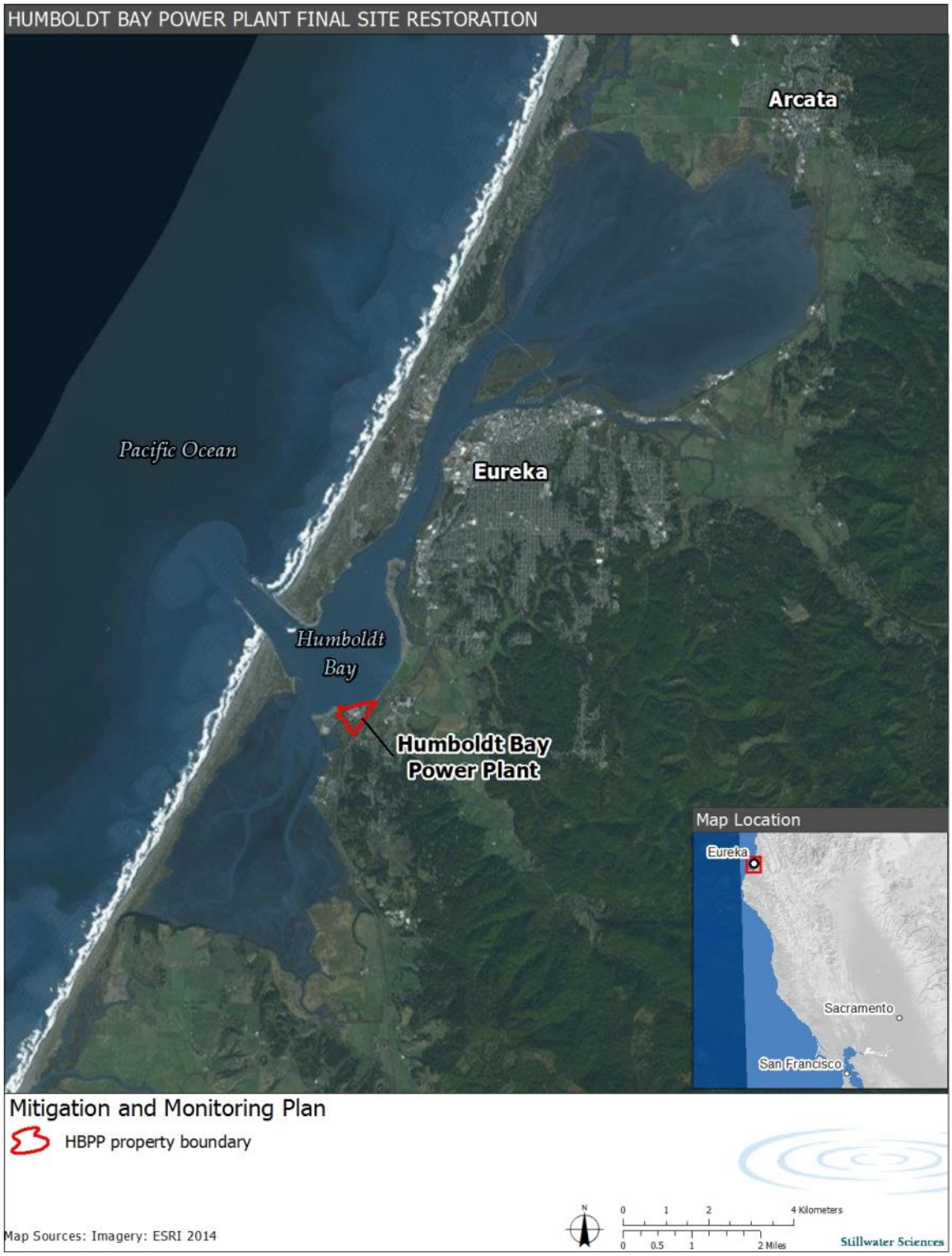

Figure 1. Project location.

1.3 Purpose of this Plan

Portions of this Project have the potential to impact jurisdictional wetlands and special-status species, requiring mitigation measures. In addition, previous permits obtained for ongoing decommissioning work as well as construction of HBGS required restoration of certain areas following decommissioning and the incorporation of LID into the final site design. The purpose of this mitigation and monitoring plan is to identify the amount of jurisdictional wetlands that require mitigation; identify restoration areas and potential locations available for completing the existing mitigation and restoration requirements; outline restoration area, wetland mitigation area, and stormwater detention basin conceptual designs and implementation steps; define success criteria; describe the monitoring and reporting protocols; and describe the maintenance and adaptive management plans. This plan will also identify best management practices (BMPs) to be used during FSR plan implementation that will protect existing wetlands and minimize impacts to special-status species.

2 IMPACTS ON SPECIAL-STATUS HABITATS AND SPECIES

A full impact analysis on species and habitats is provided in the Administrative Draft Initial Study submitted to the Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) in support of the California Environmental Quality Act (CEQA) (PG&E 2015), and is summarized below.

2.1 Wetlands

A wetland delineation was conducted in 2015 covering the potential Project impact areas (Stillwater Sciences 2015). The area of potential project impact (wetland survey area) contains 2.27 ac of Waters of the U.S. under the jurisdiction of the United States Army Corps of Engineers (USACE) (2.25 ac of which are also considered Waters of the State), 2.39 ac of wetlands under the jurisdiction of both the USACE and CCC (USACE jurisdictional wetlands are, by definition, also under the jurisdiction of the CCC), and an additional 0.14 ac of wetlands solely under the jurisdictional of the CCC. These waters and wetlands are summarized in Table 1 and mapped in Figure 2. Several of these features have been revised from previous USACE- and CCC-verified delineations.

Table 1. Waters and wetlands identified in the survey area.

Description	Acreage
Waters of the U.S.	
Waters[1]	
Buhne Slough	0.20
Intake Canal	1.96
Intermittently flowing drainage ditches	0.11
Wetlands Adjacent to Waters[2]	
Semi-permanently flooded palustrine persistent emergent wetlands	1.84
Seasonally flooded palustrine persistent emergent wetlands	0.55
Additional CCC Jurisdictional Wetlands	
One-parameter wetlands	0.14

[1] Buhne Slough, Intake Canal and 0.095 acre of the intermittently flowing drainage ditches are also considered waters of the State

[2] Also considered CCC Jurisdictional Wetlands

Figure 2. Wetland survey area and delineated waters and wetlands.

2.2 Plants

Several special-status plant species have the potential to be found in the region: sea watch (*Angelica lucida*), coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), false gray horsehair lichen (*Bryoria pseudocapillaris*), twisted horsehair lichen (*Bryoria spiralifera*), bristle-stalked sedge (*Carex leptalea*), Lyngbye's sedge (*Carex lyngbyei*), northern meadow sedge (*Carex praticola*), Oregon coast paintbrush (*Castilleja affinis* ssp. *litoralis*), Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*), Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*), Whitney's farewell-to-spring (*Clarkia amoena* ssp. *whitneyi*), coast fawn lily (*Erythronium revolutum*), minute pocket moss (*Fissidens pauperculus*), Pacific gilia (*Gilia capitata* ssp. *pacifica*), short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*), marsh pea (*Lathyrus palustris*), beach layia (*Layia carnosa*), Kellogg's lily (*Lilium kelloggii*), western lily (*Lilium occidentale*), heart-leaved twayblade (*Listera cordata* var. *nephrophylla*), leafy-stemmed miterwort (*Mitellastra caulescens*), ghost-pipe (*Monotropa uniflora*), Howell's montia (*Montia howellii*), Wolf's evening-primrose (*Oenothera wolfii*), California pinefoot (*Pityopus californica*), nodding semaphore grass (*Pleuropogon refractus*), Oregon polemonium (*Polemonium carneum*), dwarf alkali grass (*Puccinellia pumila*), trailing black currant (*Ribes laxiflorum*), maple-leaved checkerbloom (*Sidalcea malachroides*), Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*), coast checkerbloom (*Sidalcea oregana* ssp. *eximia*), western sand-spurrey (*Spergularia canadensis* var. *occidentalis*), Methuselah's beard lichen (*Usnea longissima*), and alpine marsh violet (*Viola palustris*).

All special-status plants have a low likelihood of occurrence within the project site except for Point Reyes bird's-beak and Humboldt Bay owl's-clover, which have a moderate likelihood of occurrence due to nearby known populations. The banks of the Intake Canal contain a narrow band of northern coastal salt marsh at or near the high-high tide line within the area delineated as Waters of the U.S. in the Intake Canal. This vegetation type is listed as a sensitive natural community in the California Natural Diversity Database (California Department of Fish and Wildlife 2015). Eelgrass (*Zostera marina*) is also located in the Intake Canal. Eelgrass habitat has been identified as a "Habitat Area of Particular Concern" as a subset of Essential Fish Habitat pursuant to the Magnuson-Stevens Fishery Conservation and Management Act and as a "species of special biological significance," by the CCC and therefore requires special protection pursuant to the California Coastal Act (HBHRCD 2006). A complete list of special-status plant species and communities evaluated for the likelihood to occur in the project site can be found in the Project Initial Study (PG&E 2015).

2.3 Fish and Wildlife

Special-status fish species were evaluated to assess likelihood of occurrence in the area and the potential for the Project to affect the species or their habitats, and it was determined that no special-status fish species or their habitat have the potential to be affected and thus no mitigation measures are identified to protect the resource (PG&E 2015). Special-status fish species in the region, all of which have low potential to occur within the project site, include North American green sturgeon Northern and Southern Distinct Population Segments [DPS] (*Acipenser medirostris*), longfin smelt (*Spirnichus thaleichthys*), coho salmon (southern Oregon/northern California [SONCC] Evolutionary Significant Unit [ESU]) (*Oncorhynchus kisutch*), steelhead (Northern California DPS) (*Oncorhynchus mykiss*), and Chinook salmon (California coastal ESU) (*Oncorhynchus tshawytscha*). Tidewater goby (*Eucyclogobius newberryi*) does occur in locations near the HBPP; however, the USFWS (2014) concluded that suitable habitat was not present, and focused surveys also failed to detect presence at and adjacent to the HBPP. FSR implementation

will have no impact on Northern and Southern DPS green sturgeon and their habitat, or tidewater gobies and their habitat. FSR plan implementation actions that have the potential to affect coho salmon, longfin smelt, northern California steelhead, and Chinook salmon include work associated with upgrading the culverts that run from the Frog Pond and Buhne Point Wetland Preserve to the Intake Canal. Construction will occur during low tide and not involve in-water work; therefore, there will be no impact on these fish species or their habitats.

Special-status amphibians that have the potential to occur and be affected by the Project include the northern red-legged frog (*Rana aurora*), which has been documented to occur in the project site. Enhancing and creating habitat and implementing rescue and relocation measures during construction will minimize impacts (as described in Section 6). A variety of construction-related activities associated with the FSR plan implementation have the potential to affect this species. These include routing stormwater from the Independent Spent Fuel Storage Installation (ISFSI) Support stormwater detention basin into the Buhne Point Wetland Preserve; filling and contouring the Discharge Canal; excavation and grading near the Duck Pond; and grading of the Frog Pond. Northern red-legged frogs have the potential to be in all of these locations. Also, the addition of flow from the ISFSI stormwater detention basin into the Buhne Point Wetland Preserve will expand red-legged frog breeding and rearing habitat. The Frog Pond will also contain higher quality habitat following grading activities than the current condition.

Special-status bird species with the potential to occur in the project site include marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), western snowy plover (*Charadrius alexandrinus nivosus*), and tricolored blackbird (*Agelaius tricolor*). The species-specific analysis determined that the project will have a less-than-significant impact on marbled murrelets and no impact on their habitat, and less-than-significant impact to tricolored blackbirds and their habitat, while the Project will have no impact on bald eagles or western snowy plovers and their associated habitats; therefore, no mitigation measure is identified to protect the resource (PG&E 2015). Bird species protected under the Migratory Bird Treaty Act have the potential to nest in existing habitat (e.g., trees to be removed, ground nesting, buildings, vegetation in the preserve) and construction activity has the potential to harm bird species. To minimize these impacts, a pre-construction bird nesting survey during the breeding season would be conducted prior to construction (as described in Section 5). The Project will result in increased quality of breeding and foraging habitat with the addition of stormwater detention basins and new wetland habitat in Trailer City.

Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat (*Antrozous pallidus*) have a low potential to roost in tree cavities intended for removal on the HBPP property (PG&E 2015). To minimize potential impacts to these species, a survey for suitable bat roosting cavities will be conducted of any tree slated for removal as part of FSR plan implementation (as described in Section 5).

2.4 Sea Level Rise

The Humboldt Bay area is and will continue to be affected by sea level rise. The CCC has taken steps to incorporate considerations of sea level rise in its Coastal Development Permit (CDP) process and has recently issued guidance on doing so (CCC 2013). In California north of Cape Mendocino, the rate of sea level rise over the next 100 years is expected to range from 0.3 to 4.7 ft (National Research Council 2012). Locally in the Humboldt Bay/Eel River estuary area, however, subsidence counteracts the effects of tectonic uplift that is occurring elsewhere north of Cape Mendocino, making Humboldt Bay more susceptible to sea level rise than elsewhere on the

north coast of California. The CCC's guidance document recommends replacing the estimates of tectonic uplift that apply in this region with a local sea level rise factor for the Humboldt Bay area of 0.16 inches (in)/year. The CCC draft sea-level rise policy guidance document (CCC 2013) was used to estimate the amount of sea-level rise that may occur in the project site so that the effects could be evaluated for the proposed mitigation areas. The projected sea-level rise in Humboldt Bay by 2030 and 2050 was calculated using the sea-level rise rates and formulas in the guidance document (CCC 2013) for north of Cape Mendocino and then adjusting for Humboldt Bay subsidence per CCC (2013) by subtracting the North of Cape Mendocino factor and then adding the Humboldt Bay subsidence-per-year factor times the number of years (Table 2). The mitigation areas for this project were designed with sea-level rise in mind and are expected to be able to withstand the predicted changes. The impacts of sea-level rise on each mitigation area are described in more detail below.

Table 2. Projected sea-level rise[1] in Humboldt Bay, per CCC 2013.

Projection	2030		2050	
	cm	in	cm	in
Low range	5.6	2.2	12.7	5.0
Projected	9.9	3.9	21.8	8.6
High range[2]	31.8	12.5	63.0	24.8

[1] Adjusted for Humboldt Bay subsidence per CCC (2013) by subtracting the North of Cape Mendocino factor and then adding the Humboldt Bay subsidence-per-year factor times the number of years.

[2] The high range was used for evaluating the impact of sea-level rise on the mitigation areas.

3 PERMITTING AND MITIGATION NEEDS

The Project requires a permit under Section 404 of the Clean Water Act from the USACE, a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB), a CDP from the CCC, a development permit from the HBHRCD, and a Streambed Alteration Agreement from California Department of Fish and Wildlife. The Project is also subject to regulation under CEQA and the state and federal Endangered Species Acts. The HBHRCD is lead agency for CEQA.

PG&E will be responsible for implementing this mitigation plan including the monitoring and reporting program, maintenance during the monitoring period, and any adaptive management determined necessary to achieve success criteria.

3.1 Restoration Requirements from Previous Permits

The FSR plan includes some changes to the final site conditions from what had been envisioned during earlier phases of planning and permitting at the site. These changes result from a better understanding of PG&E's long-term operational needs for the site as the construction and planning have progressed. Consequently, PG&E is requesting changes to some of the restoration requirements included in existing permits to better reflect the current vision and intentions for site use. The restoration requirements from previous permits that have not yet been implemented, as well as any proposed changes from the permitted conditions, are summarized in Table 3 and

described in detail below. More detail about these areas can be found in the FSR Project Description in the Initial Study (PG&E 2015).

Table 3. Restoration requirements from existing permits associated with HBPP decommissioning and HBGS construction.

Area	Acres	Existing permit requirements	Proposed change from permitted condition	Applicable existing permit
Charlie Road	0.37	Restore area including 0.244 ac of CCC wetlands	none	CDP E-08-003, E-08-003-A1, CDP E-09-005
ISFSI Support Office Parking Lot (Contractor Parking Lot #2)	1.05	Restore to pre-project conditions	Maintain a 0.81-ac portion for parking; convert remaining 0.24 ac to stormwater detention basin	CDP E-08-003-A1
Bayview Heights	6.06	Restore to pre-project conditions	Retain roadways; improve slope stability; add turn-around	CDP E-09-010, E-08-008, E-08-008-A1
Trailer City	3.61	Restore area including 1.83 ac of CCC wetlands and 0.06 ac of USACE wetland	Add an 0.57 ac stormwater detention basin	CDP E-07-005, E-09-010
Alpha Road	1.10	Restore road to previous conditions (upland)	Maintain as primary site access for HBGS, pave, and add guardrails along Intake Canal	CDP E-09-010, CEC Condition of Certification VIS-2
Rest-1	1.19	Restore 0.30 ac portion of Rest-1 affected by temporary access road (Alpha Road)	Maintain as primary site access and parking area for HBGS, pave	CEC License Condition BIO-12
Contractor Pedestrian Trail	0.60	Remove trail and restore surface	none	CDP E-09-010

3.1.1 Charlie Road

CDPs E-08-003 and E-08-003-A1 authorized the installation of an improved Charlie Road and contain provisions for restoring the road to pre-project conditions. Although mitigation was provided for the temporary and permanent impacts due to the construction and subsequent improvements to Charlie Road, CDPs E-08-003, E-08-003-A1, and E-09-005 require that the road area be restored to its pre-project condition as CCC wetlands once decommissioning is complete.

The restoration of this area is described below in Section 4.9.

3.1.2 ISFSI Support Office Parking Lot (Contractor Parking Lot #2)

The area known as Contractor Parking Lot #2 was constructed following removal of Liquid Fuel Oil (LFO) Tank 2 to provide decommissioning parking and later to serve the Count Room area during decommissioning. CDPs E-08-003 and E-08-003-A1 authorized this parking lot and required the restoration of the area to pre-project conditions after decommissioning. PG&E is proposing to remodel the existing Count Room building to serve as the ISFSI support administration offices; the current ISFSI offices are located on Bayview Heights and will be

removed. The eastern 0.81 ac of this parking lot and Count Room area will be retained to serve as the ISFSI Support administrative office and parking. The remaining 0.24 ac will be converted into a stormwater detention basin. This area will be accessed by the ISFSI Entrance Road off of Bravo Road.

The stormwater basin design is described below in Section 4.2.

3.1.3 Bayview Heights

The HBPP decommissioning program calls for the demolition of the existing buildings in Bayview Heights, including the removal of construction trailers, laydown materials, infrastructure (e.g., stormdrains), and building foundations.

Under the FSR plan, most of the area will be graded to remove compacted soil, fill any large voids and smooth steep contours left by the buildings and foundation, integrate the area into the adjacent mitigation and restoration areas, and provide for more efficient access for vegetation establishment and management. Existing roadways (RCA Way and Bayview Drive) will remain and Bayview Drive will be expanded to include a new turnaround east of the ISFSI.

The restoration of this area is described below in Section 4.3.

3.1.4 Trailer City

When PG&E proposed to use the Trailer City area for the HBGS construction laydown and construction trailers, the CEC required as part of its licensing process that, after HBGS construction, Trailer City be returned to pre-project conditions, including the replacement of 1.83 ac of CCC-jurisdictional wetlands and 0.06 ac of USACE-jurisdictional wetlands, (total of 1.89 ac). Pursuant to CDPs E-07-005 and E-09-010 and the HBGS Surface Restoration Plan approved by the CEC, the CCC assumed jurisdiction of the area, allowing PG&E to continue use of Trailer City for construction laydown and support activities during decommissioning. Restoration of the area is required by the CCC as a requirement of the CDPs.

In addition, the CEC license process (Condition VIS-5) required that PG&E prepare a plan for landscape screening along the northern boundary of Trailer City area to screen views of the HBGS from the Shoreline Trail and Humboldt Bay. The HBGS VIS-5 plan was approved by the CEC on August 27, 2010.

Following the completion of the Canal Remediation Project (CDP 9-13-0621), the Trailer City area will be graded and excavated to create a restoration/mitigation wetland area (Shoreline Wetland) including 1.83 ac of CCC-jurisdictional wetlands and 0.06 ac of USACE-jurisdictional wetlands to replace the existing wetlands that existed pre-project as well as 0.29 ac of additional wetlands to mitigate for impacts to wetlands elsewhere on the site. In addition, a portion of the intermittently flowing drainage ditch between Trailer City and HBGS will be graded and excavated to create a stormwater detention basin. The basin will be designed to receive and treat stormwater runoff from Bayview Heights and the HBPP Core Area before discharging into the proposed adjacent mitigation wetlands. Screening vegetation will also be planted throughout the area to fulfill CEC Condition VIS-5.

The Trailer City restoration/mitigation area (Shoreline Wetland) is described in detail below in Section 4.5.

3.1.5 Alpha Road

Following completion of HBGS construction, it was determined that several HBGS temporary construction areas were needed for HBPP decommissioning. These areas included the construction laydown area, the temporary access road (also known as Alpha Road) and associated pedestrian walking path, fencing, pedestrian bridge over the Intake Canal, and temporary construction parking area located adjacent to Alpha Road. The July 2010 Surface Restoration Plan which was written to satisfy the CEC Condition of Certification VIS-2, states that these areas would be restored once decommissioning was complete, as a requirement of CDP E-09-010 issued by the CCC for HBPP decommissioning. It has been determined, however, that Alpha Road is needed permanently as a heavy haul road because it enters King Salmon Avenue on the US 101 side of the King Salmon Avenue Bridge over the Intake Canal, and this bridge is reported not to be engineered to accept the heavy loads required for the relocation of the spent fuel rods located at the ISFSI site.

Prior to the construction of Alpha Road, the portion of the road running parallel to the Intake Canal south of HBGS was composed of grassland with ruderal (weedy) plant species and landscaping and was managed with irrigation and mowing for security, screening, and fire protection. There were no USACE or CCC jurisdictional wetlands, or special-status plant or animal species along this portion of the access road. The remaining portion of the road is known as Rest-1 and is described below.

With the conversion of Alpha Road from temporary to permanent, 1.10 ac of upland will be paved and remain as the primary access road for HBGS. The fencing along the Intake Canal will be replaced with a guardrail or other wildlife-friendly fencing alternative. Two small overflow parking areas along the east side of Alpha Road will be removed and restored (see Section 4.10).

3.1.6 Rest-1

On the west-southwest side of HBGS, to the south of Alpha Road and to the west of the HBGS diesel tank, is an area designated as Rest-1 that contains a vegetated swale that receives stormwater runoff from HBGS and a landscape screen that was planted in compliance with a Condition of Certification for the HBGS CEC License (BIO-12). This area is long and narrow and provides a buffer between the HBGS/Alpha Road and the Buhne Slough tidal marsh. Most of the restoration at Rest-1 was completed in 2010. However, a small area immediately adjacent to the southern boundary of the HBGS site, north of the Alpha Road parking area, was incorporated into Alpha Road. Prior to construction, this area contained both CCC and USACE wetlands. Per the Buhne Point Preserve Mitigation and Monitoring Plan (Dains and CH2M HILL 2009), a 0.3-ac portion of Rest-1 was to be restored once use of Alpha Road had concluded (upon completion of HBGS construction and then HBPP decommissioning).

However, converting Alpha Road from a temporary to a permanent road would preclude the restoration of this 0.3-ac portion of Rest-1. This will result in 0.274 ac of CCC wetlands and 0.011 ac of USACE wetlands that require mitigation for permanent impacts. These wetlands will be mitigated for in the Shoreline Wetland mitigation area (see Section 4.5).

3.1.7 Contractor Pedestrian Trail

A gravel-surfaced pedestrian trail was created as a walkway for construction workers going from Contractor Parking Lot #1 to the Assembly Building area and from there across the pedestrian bridge to HBGS or down Bravo Road to HBPP. The trail was a temporary construction

appurtenance initially under the CEC's jurisdiction that came under CCC jurisdiction with CDP E-09-010. A requirement of this CDP is to remove the trail and bridge and restore the area to natural conditions.

The restoration of this area is described below in Section 4.6.

3.2 Low-Impact Design and Stormwater Management

The HBGS Section 401 Certification Condition 12 requires PG&E to submit a stormwater management plan for the former power plant site. This condition also requires that the final site design incorporates grading and drainage measures that maximize implementation of LID.

As part of decommissioning and restoration, portions of the existing stormwater conveyance system will be retained, while other sections will be entirely removed, resulting in significant alteration to drainage patterns and outfalls. The LID design techniques protect and enhance surrounding habitat. This is done by minimizing impervious surfaces and developing a network of bio-swales or vegetated swales and bio-detention basins located throughout the project area designed to retain and treat stormwater flows. Two new major stormwater detention basins are proposed in the ISFSI Support and Trailer City areas (see Sections 4.2 and 4.4). In addition, an existing stormwater detention basin, the Frog Pond, will be re-contoured and connected via a culvert with the new ISFSI stormwater basin. Finally, several "rain gardens" (small vegetated-swales) will be created at strategic places around the property (see Section 4.11). The locations of these will be shown on the grading and drainage plan that will be completed prior to implementation.

Treatment of runoff will occur in the swales and basins through a combination of sedimentation, adsorption, and other natural processes that help to remediate constituents of concern such as petroleum hydrocarbons and metals to less than significant levels. These processes are enhanced with the help of a community of native plants and soil incorporated within the swales and basins. The system will be designed so that it will retain 100 percent of the volume of runoff from the 85th percentile, 24-hour storm, for an average of 48 hours.

3.3 New Impacts on Existing Wetlands

The proposed FSR plan also includes some actions that would result in new impacts on existing wetlands. Project impacts on the jurisdictional wetlands, proposed areal mitigation ratios, and proposed mitigation locations are described below and summarized in Table 3. More detail is available in the Project's draft Initial Study (CH2M HILL 2013).

3.3.1 Alpha Road

Alpha Road will be paved at the existing width, except at the entrance at King Salmon Avenue, and the existing HBGS guard shack will be maintained. A re-alignment of the Alpha Road intersection with King Salmon Avenue is designed to meet a Humboldt County road safety standard that requires a 90-degree intersection angle for permanent roadways. The new proposed road section will require fill to bring it to grade. The installation of a mechanically stabilized earth wire wall on the Buhne Slough side is proposed to minimize the footprint and potential impacts to adjacent wetland. In addition, an existing culvert will be replaced at the north end of Alpha Road to maintain and enhance ecological and hydrological connectivity between the Intake Canal and Buhne Slough.

There will be permanent impacts to approximately 0.001 ac and temporary impacts to 0.05 ac of wetlands under the jurisdiction of both the CCC and USACE. Permanent impacts to wetlands will be mitigated for at a 1:1 ratio by creating 0.001 ac of additional wetland habitat in the Shoreline Wetland mitigation area. Temporary impacts will be mitigated for by enhancing the existing vegetation in Buhne Point Preserve Fringe area (see Section 4.7).

3.3.2 Intake Canal and Buhne Point Wetland Preserve

The Buhne Point Wetland Preserve (Preserve) currently consists of 6.1 ac of wetland and upland habitat. Most of the area has been established for a number of years and is composed of a mosaic of coastal grassland, riparian scrub/forest, and saltwater and freshwater marsh. Tidal flow is maintained to the saltwater portion of the Preserve via an inflow-outflow pipe connecting to the Intake Canal. This pipe is in very poor condition. The up-gradient side of the culvert is partially obstructed with woody debris and there is significant bank erosion at the broken culvert outlet on the down-gradient side. Without replacement, the culvert would likely fail and tidal flow to the Preserve would be lost.

This culvert will be replaced and an adjustable weir (and/or tide) structure will be installed to control flow and enhance ecological function and connectivity between the Intake Canal and the Preserve. The existing culvert between the Frog Pond stormwater detention basin and the Intake Canal will also be replaced. An adjustable weir will be installed to provide for overflow during large storm events and as a way to drain the basin for maintenance activities. In addition, the pedestrian bridge and its concrete footings will be removed as part of the FSR plan.

Impacts to wetlands in the Preserve and adjacent to the Intake Canal, including Northern Coastal salt marsh and eelgrass habitat, will be minimized to the extent possibly by implementing avoidance and mitigation measures. Culvert replacement would be done in a manner that avoids impacts on the waters of the Intake Canal and would not require sheet piling or other water control structures or in-water work. Removal and replacement of the portions of the culverts connected to the Intake Canal would be executed during a single period of low tide when the water is below the level of the culvert and with controls to ensure that sediment does not enter the canal waters. Removal of the pedestrian bridge and concrete footings will be conducted by a crane from the shore. Appropriate BMPs such as silt curtains will be installed around the foundations to protect the Intake Canal from impacts on water quality. The area left by removing the two approximately 10-ft-by-5-ft concrete footings will be restored to match the surrounding topography and planted with native vegetation (described below in Section 4.12).

Excavation of the fill adjacent to the culverts has the potential to temporarily impact wetlands, including Northern Coastal salt marsh. However, this impact will be minimized to the extent possible and will be temporary. Restoration of impacted areas is described below in Section 4.12. Temporary and temporal impacts will be mitigated for by enhancing the existing vegetation in Buhne Point Preserve Fringe (see Section 4.7).

3.3.3 Bayview Heights

One wetland (0.003 ac) under the jurisdiction of both the USACE and the CCC, one wetland (0.095 ac) under the jurisdiction of the CCC, and one intermittently flowing drainage ditch (0.017 ac) (considered Waters of the U.S., but not Waters of the State) will be impacted by the proposed grading at Bayview Heights. These waters and wetlands are maintained in their current state through the input of stormwater from the ISFSI and discharge into the existing stormwater

system. Removal of the stormwater system and grading in this area will permanently remove the wetlands.

The loss of these waters and wetlands will be mitigated for at a 1:1 ratio by creating 0.115 ac of additional wetland habitat in the Shoreline Wetland mitigation area (see Section 4.5).

3.3.4 Duck Pond

The area to the east of Trailer City at the extreme east end of the property is called the Duck Pond and consists of a semi-freshwater or brackish marsh with native vegetation a few feet in elevation above the surrounding tidally influenced salt marsh. Although not tidal, it shows some evidence of saltwater intrusion, including halophytic plants. No changes are planned for this area as part of the FSR plan and it will remain a natural area. The Shoreline Wetland mitigation area will be hydraulically connected with this area.

The western/southwestern edge of the Duck Pond will be minimally impacted when the upland boundary is recontoured to connect to the Shoreline Wetland mitigation area. Restoration of impacted areas is described below in Section 4.12. Temporary and temporal impacts will be mitigated for by enhancing the existing vegetation in Buhne Point Preserve Fringe (see Section 4.7).

3.3.5 Frog Pond stormwater detention basin

The area between the Assembly Building, Waste Management Building, and Bravo Road is a basin that collects stormwater runoff from the Waste Management Building, other portions of Buhne Point Hill, and Bravo Road. Collected stormwater in this area is currently released with minimal retention from the low point of the basin into the Intake Canal through a 12-in pipe controlled by a gate valve (currently left open) on the up-gradient side and a “duck bill” valve on the down-gradient side. Also located in the basin is an elevated concrete vault containing a sewer lift station.

The new ISFSI Entrance Road is proposed to be built through a portion of the existing stormwater basin. Other impacts on this area will involve grading and replanting to improve stormwater retention and treatment and the removal and management for invasive species. Access to and water quality protection from the sewer lift station will be improved by filling the area around it to the current elevation. The culvert connecting to the Intake Canal will be replaced to provide for overflow during large storm events and as a way to drain the basin for maintenance activities. Impacts on the Intake Canal wetlands and waters from culvert replacement are discussed above in Section 3.3.2.

There will be permanent impacts to 0.130 ac of USACE/CCC wetlands and temporary impacts to approximately 0.165 ac of USACE/CCC wetlands as a result of the basin grading and culvert replacement. However, the resulting basin will be 0.072 ac larger in size than the existing basin, which results in a slightly greater than 1.5:1 mitigation ratio for permanent impacts. Temporary impacts will be mitigated for by removing the invasive plants in the existing basin and replanting with native species. The entire basin will receive additional water as a result of the improvements, which will also enhance the wetlands in the basin. The design of the Frog Pond Stormwater Basin is described below in Section 4.8.

3.3.6 King Salmon Avenue wetlands

One intermittently flowing drainage ditch (0.023 ac) (considered both Waters of the U.S. and Waters of the State) and one 0.040-ac wetland under the jurisdiction of the CCC will be temporarily impacted by the construction of Mit-7 (described above in Section 3.1.1). This mitigation area will be connected to the existing wetlands. Impacts will be minimized to the extent possible and will be temporary. Restoration of impacted areas is described below in Section 4.12. Temporary impacts will be mitigated for by enhancing the existing vegetation in the King Salmon Avenue wetland and connecting it to the larger wetlands in the Buhne Point Wetlands Preserve via Mit-7 (see Section 4.1).

3.4 Proposed Restoration and Mitigation Ratios and Schedule

PG&E proposes to fulfill the restoration and mitigation requirements outlined in Section 3 by restoring, creating, and/or enhancing wetland and upland landscape on the HBPP property. The conceptual design of the end state per the FSR plan, including the restoration and mitigation areas, is shown in Figure 3; engineering plans will be completed prior to implementation.

Restoration is defined as returning the impacted area as close as possible to pre-construction (or pre-HBPP) conditions. Enhancement involves changing the quality of a habitat (e.g., removing invasive plant species). Enhancement is often used to mitigate for temporary disturbances to wetlands (in addition to restoring the impacted areas) or for a temporal lag between impacts and mitigation ("temporal loss"). Creation is making a new wetland in an upland area. Creation of new wetland habitat is typically required as mitigation for permanent impacts. Each proposed restoration and mitigation area is described below.

The acreage of various wetland habitats affected by the Project and the proposed mitigation ratios for these impacts are summarized in Table 4. Mitigation requirements have not been finalized for this Project; this will happen in consultation with appropriate agencies. Once the exact ratio and mitigation requirements have been finalized, this mitigation and monitoring plan will be revised accordingly. The implementation of each restoration and mitigation area will begin as soon as the Project schedule allows. Table 4 indicates the anticipated timing of performing each restoration or mitigation action. Monitoring in each restoration and mitigation area will begin as soon as the mitigation action is complete. Any area that will be restored as required by previous permits (e.g., pedestrian trail) is considered restoration and not mitigation (therefore, not included in Table 4). Upland restoration is also not included in the mitigation table but addressed separately below.

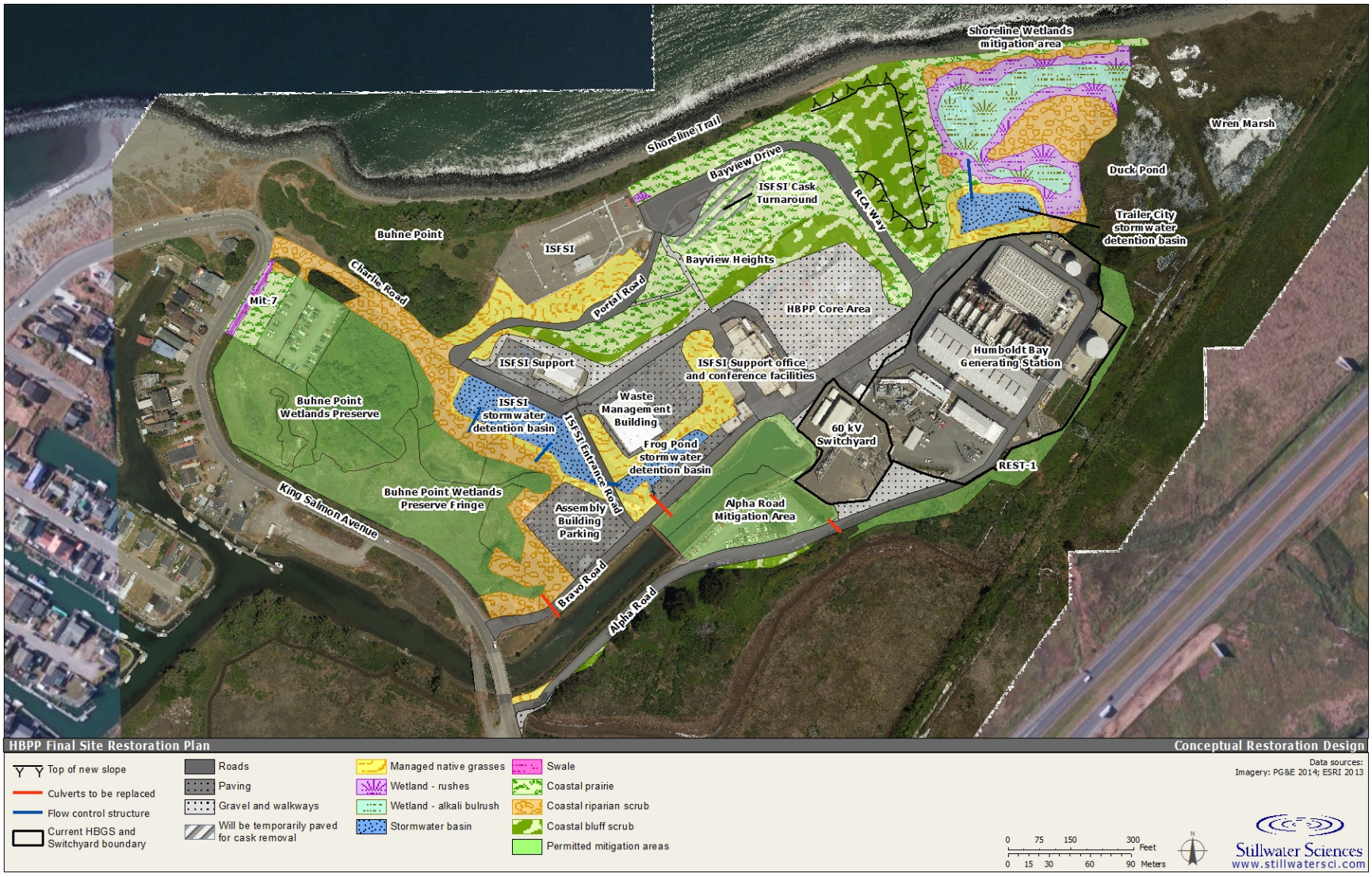

Figure 3. Conceptual restoration and mitigation design for the HBPP following decommissioning.

Table 4. Project impacts to wetlands, proposed mitigation ratios, and proposed mitigation locations.

Location, habitat type, and duration	Impact	Anticipated impact timing	Affected area (ac)	Proposed mitigation ratio	Affected area times ratio (ac)	Mitigation location (Figure 5)	Anticipated mitigation timing	Restoration, Creation, or Enhancement action
Bayview Heights CCC jurisdictional wetlands (permanent)	grade and modify stormwater drainage system	2021	0.095	1:1	0.095	Mit-7	2020	Create CCC jurisdictional wetlands
Bayview Heights USACE and CCC jurisdictional wetlands (permanent)	grade and modify stormwater drainage system	2021	0.003	1:1	0.003	Mit-7	2020	Create USACE and CCC jurisdictional wetlands
Bayview Heights Waters of the U.S. (permanent)	grade and modify stormwater drainage system	2021	0.017	1:1	0.017	Mit-7	2020	Create USACE and CCC jurisdictional wetlands
Alpha Road Waters of the U.S. (temporary)	Road Realignment and culvert replacement	2018	0.05	1:1	0.05	Alpha Road	2018	Restore impacted areas with native species
Alpha Road Waters of the U.S. (permanent)	Road Realignment	2018	0.05	1:1	0.05	Mit-7	2020	Create USACE and CCC jurisdictional wetlands
Rest-1 CCC jurisdictional wetlands (permanent)	temporary impact made permanent—keeping road as site access	2009	0.274	1:1	0.274	Shoreline Wetland	2020	Create CCC jurisdictional wetlands

Location, habitat type, and duration	Impact	Anticipated impact timing	Affected area (ac)	Proposed mitigation ratio	Affected area times ratio (ac)	Mitigation location (Figure 5)	Anticipated mitigation timing	Restoration, Creation, or Enhancement action
Rest-1 USACE and CCC jurisdictional wetlands (permanent)	temporary impact made permanent—keeping road as site access	2009	0.011	1:1	0.011	Shoreline Wetland	2020	Create USACE and CCC jurisdictional wetlands
Buhne Point Wetlands Preserve USACE and CCC jurisdictional wetlands (temporary)	Culvert replacement	2019	0.009	1:1	0.009	Buhne Point Wetlands Preserve	2019	Restore impacted areas and enhance existing wetlands by removing invasive species and replanting with native species
Buhne Point Wetlands Preserve Waters of the U.S. (temporary)	Culvert replacement	2019	0.009	1:1	0.009	Buhne Point Wetlands Preserve	2019	Restore impacted areas and enhance existing wetlands by removing invasive species and replanting with native species
Intake Canal USACE and CCC jurisdictional wetlands (temporary)	Culvert replacement and Bridge footing removal	2019	0.018	1:1	0.018	Buhne Point Wetlands Preserve	2019	Restore impacted areas and enhance existing wetlands by removing invasive species and replanting with native species
Intake Canal Waters of the U.S. (temporary)	Culvert replacement and Bridge footing removal	2019	0.018	1:1	0.018	Buhne Point Wetlands Preserve	2019	Restore impacted areas and enhance existing wetlands by removing invasive species and replanting with native species

Location, habitat type, and duration	Impact	Anticipated impact timing	Affected area (ac)	Proposed mitigation ratio	Affected area times ratio (ac)	Mitigation location (Figure 5)	Anticipated mitigation timing	Restoration, Creation, or Enhancement action
Frog Pond Stormwater Basin USACE and CCC jurisdictional wetlands (temporary)	Grade existing stormwater basin; creating ISFSI entrance road	2018	0.165	1:1	0.165	Frog Pond	2018	Restore impacted areas and enhance existing wetlands by removing invasive species and replanting with native species
Frog Pond Stormwater Basin USACE and CCC jurisdictional wetlands (permanent)	Grade existing stormwater basin; creating ISFSI entrance road	2018	0.130	1.5:1	0.195	Frog Pond	2018	Create additional wetlands as part of the enhanced stormwater basin
King Salmon Avenue CCC jurisdictional wetlands (temporary)	creation of adjacent mitigation area	2021	0.040	1:1	0.040	King Salmon Avenue/Mit-7	2021	Restore impacted areas and enhance existing wetlands by removing invasive species and connecting to mitigation wetlands
King Salmon Avenue Waters of the U.S. (temporary)	creation of adjacent mitigation area	2021	0.023	1:1	0.023	King Salmon Avenue/Mit-7	2021	Restore impacted areas and enhance existing waters by removing invasive species and connecting to mitigation wetlands

Location, habitat type, and duration	Impact	Anticipated impact timing	Affected area (ac)	Proposed mitigation ratio	Affected area times ratio (ac)	Mitigation location (Figure 5)	Anticipated mitigation timing	Restoration, Creation, or Enhancement action
Trailer City drainage ditch Waters of the U.S. (temporary)	creation of stormwater detention basin and wetland mitigation area	2020	0.016	1:1	0.016	Trailer City drainage ditch/ Shoreline Wetland	2020	Restore impacted areas and enhance existing drainage ditch by removing invasive species and replanting with native species
Trailer City drainage ditch Waters of the U.S. (permanent)	creation of stormwater detention basin and wetland mitigation area	2020	0.228	1:1	0.228	Trailer City drainage ditch/ Shoreline Wetland	2020	Create additional wetlands as part of the enhanced stormwater basin and wetland mitigation area
King Salmon Avenue, Alpha Road, and Frog Pond Stormwater Basin waters and wetlands (temporary impacts and temporal loss)	temporary impacts	2018–2021	0.351	2.8:1	1.01	Buhne Point Preserve Fringe	2018	Enhance the Buhne Point Preserve Fringe area by removing non-native species and replanting with native vegetation

4 PROPOSED RESTORATION AND MITIGATION

Proposed restoration goals, objectives, and success criteria for each restoration and mitigation area are described in this section and summarized in Table 5. The timing of the monitoring period to evaluate the success criteria is described below in Section 6. These proposed goals reflect ongoing operational and maintenance needs of the HBGS and ISFSI. As such, they represent a balance among desires for site security, worker safety, and ecological benefits in the restoration and mitigation areas. For example, restoration actions within the ISFSI Owner Controlled Area security fencing (e.g., Bayview Heights) include the needs of maintaining site security and worker safety, and therefore, restoration actions are focused on revegetating hillslopes to stabilize sediment and establishing a self-sustaining, low-maintenance native landscape. There is no intention to attract wildlife to the industrial and security zone; therefore, no wildlife monitoring is proposed and no success criteria are associated with this location. Similarly, vegetated stormwater basins are intended to protect the water quality of adjacent natural areas by means of increasing detention time to promote sedimentation and provide a soil substrate for the adsorption of constituents of concern. Using native plant species in these areas helps to prevent the spread of non-native species while providing surface area for additional biological treatment. While some wildlife may utilize the stormwater basins, they are not designed for wildlife habitat attraction or values. In contrast, creation of wetlands such as in Mit-7 is specifically intended to provide wildlife habitat, and therefore wildlife habitat objectives and success criteria area included for this area.

Table 5. Mitigation and restoration goals, objectives, and success criteria.

Area	Goal	Objective	Success criteria
Mit-7	Goal 1: Create 0.244 ac of CCC jurisdictional wetland	Establish cover in wetland vegetation	70% cover of native vegetation. At least 50% cover of hydrophytic plants.
	Goal 2: Increase wildlife habitat value and wildlife use	Objective 1: Expand the Buhne Point Wetlands Preserve to support wildlife	Observe wildlife use (e.g., bird perching, resting, foraging). 10% of wildlife species observed in adjacent mitigation areas (e.g., Mit-1, Mit-6, Mit-2, Mit-5) will be observed in the mitigation area.
		Objective 2: Provide vegetation screening between the mitigation areas and King Salmon Avenue	90% survival of planted trees and shrubs.
ISFSI Stormwater Detention Basin	Improve the quality of stormwater flowing from industrial areas into the Buhne Point Wetland Preserve	Establish a vegetative basin with native perennial wetland species	30% cover by native perennial plants. Less than 2% cover of invasive species.

Area	Goal	Objective	Success criteria
Bayview Heights	Stabilize hillslopes with self-sustaining, low-maintenance native vegetation	Establish native plant landscape	70% cover by native perennial plants. Less than 2% cover of invasive species.
Trailer City Stormwater Basin	Improve the quality of stormwater flowing from industrial areas into the Shoreline Wetland mitigation area	Establish a vegetative basin with native perennial wetland species	30% cover by native perennial plants. Less than 2% cover of invasive species.
Shoreline Wetland Mitigation Area	Goal 1: Establish 0.096 ac of USACE and 2.199 ac of CCC jurisdictional wetlands	Objective 1: Create a drainage pattern of basin and swale to increase saturation to promote the formation of hydric soils	Long duration (approximately 21 days) of soil saturation in 0.096 ac.
		Objective 2: Establish cover in wetland vegetation	70% cover of native vegetation. At least 50% cover of hydrophytic plants in 2.199 ac.
	Goal 2: Increase wildlife habitat value and wildlife use	Create structural diversity of vegetation for increased wildlife use	90% survival of planted trees and shrubs. 30% of wildlife species in observed in comparison site (e.g., Wren Marsh, Duck Pond, Mit-3) will be observed in the mitigation area.
Contractor Pedestrian Trail	Establish a native plant community to extend the adjacent habitats in the Buhne Point Preserve	Restore vegetation to native plant species	90% survival of planted trees and shrubs. At least 70% cover of native perennial herbs or grasses between planted trees and shrubs. Less than 2% cover of invasive species.

Area	Goal	Objective	Success criteria
Buhne Point Wetland Preserve Fringe Area	Goal 1: Establish a native plant community to extend the adjacent habitats in the Buhne Point Preserve	Restore vegetation to native plant species	90% survival of planted trees and shrubs. At least 70% cover of native perennial herbs or grasses between planted trees and shrubs. Less than 2% cover of invasive species.
	Goal 2: Maintaining and enhance wildlife habitat value and use	Objective 1: Create standing snags and perches	Observe wildlife use (e.g., bird perching, resting, foraging) of snags.
		Objective 2: Enhance wildlife connectivity to the Buhne Point Preserve	Observe wildlife movement between the adjacent mitigation areas of the Buhne Point Preserve (e.g., Mit-3, Mit-B, Mit-A, Mit-4a and 4b).
Frog Pond Stormwater Basin	Improve the quality of stormwater flowing from industrial areas into the Buhne Point Wetland Preserve	Establish a vegetative basin with native perennial wetland species	30% cover by native perennial plants. Less than 2% cover of invasive species.
Charlie Road	Establish a native plant community to extend the adjacent habitats in the Buhne Point Preserve and Buhne Point	Restore vegetation to native plant species	90% survival of planted trees and shrubs. At least 70% cover of native perennial herbs or grasses between planted trees and shrubs. Less than 2% cover of invasive species.
Alpha Road overflow parking areas	Establish a self-sustaining, low-maintenance, native plant community	Establish native plant landscape	70% cover by native perennial plants. Less than 2% cover of invasive species.
Rain Gardens	Improve the quality of stormwater runoff	Establish vegetative swales with native perennial wetland species	30% cover by native perennial plants. Less than 2% cover of invasive species.
Alpha Road, Intake Canal, Buhne Point Wetlands Preserve, and Duck Pond Temporary Impacts	Restore temporarily impacted areas	Establish native vegetation	Percent cover is at least 95% of pre-construction density. 70% of cover is made up of native plants. Less than 2% cover of invasive species.

4.1 MIT-7

Contractor Parking Lot #1 has historically been a partially graveled parking area. It was improved to provide for construction worker parking, initially for constructing HBGS, and later for the HBPP Decommissioning Program under CDP E-09-010. Two sections of the parking lot known as Mit-1 (0.43 ac) and Mit-6 (0.24 ac) are intended as mitigation areas for impacts associated with HBGS construction and the Canal Remediation Project, respectively, and are slated to be converted to freshwater wetlands when no longer needed for the HBPP decommissioning.

The remaining 0.27 ac of the contractor parking lot not covered by Mit-1 and Mit-6 is intended to be used to mitigate for the USACE- and CCC-jurisdictional wetlands that will be removed with the grading of Bayview Heights and the re-alignment of Alpha Road.

4.1.1 Existing ecological conditions

Mit-7 is currently occupied by a gravel-surfaced temporary parking area that is located adjacent to the Preserve (Figure 4). (The eastern portion of the parking area will become Mit-1 and Mit-6 when the HBPP decommissioning is completed.) There is no vegetation on the site at this time.

The water for this area is derived entirely from surface water runoff from rainfall, with the greatest precipitation in the winter (November–February) and lowest in the summer (June–September). The average annual amount of precipitation from July 1948 through March 2013 was 39.5 in (WRCC 2013).

The soils in the area are overlain by gravel over leveled fill material. The most recent soil survey conducted in this area (McLaughlin and Harradine1965) classifies Mit-7 as "residential, business and industrial area" miscellaneous land type. Subsurface investigations (PG&E 1985, 1987–1989; Woodward-Clyde Consultants 1985) at the HBPP property confirm that the underlying native soil is primarily Hookton silty clay loam, eroded, 3 to 8 percent slope (PG&E 2002) with some areas of Bayside very silty clay loam, very poorly drained, 0 to 3 percent slope.

4.1.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for Mit-7 are as follows:

Goal 1: Create 0.244 ac of CCC jurisdictional wetland

Objective 1: Establish cover in wetland vegetation

Success criteria:

- 70% cover of native vegetation
- At least 50% cover of hydrophytic plants

Goal 2: Increase wildlife habitat value and wildlife use

Objective 1: Expand the Buhne Point Wetlands Preserve to support wildlife

Success criteria:

- Observe wildlife use (e.g., bird perching, resting, foraging)
- 10% of wildlife species observed in adjacent mitigation areas (e.g., Mit-1, Mit-6, Mit-2, Mit-5) will be observed in the mitigation area

Objective 2: Provide vegetation screening between the mitigation areas and King Salmon Avenue.

Success criterion: 90% survival of planted trees and shrubs

4.1.3 Mitigation implementation

4.1.3.1 Conceptual design

The gravel surface of the parking lot and connections to King Salmon Avenue and Charlie Road will be removed and the area will be graded to remove compacted fill. The area will be recontoured to connect with the adjacent mitigation areas (Mit-6 and Mit-2 in the established Preserve). Following site grading, surface soils will be ripped as needed to create suitable conditions for planting vegetation. Mit-7 will be developed at the same time as, and designed to become extensions of, Mit-1 and Mit-6, with a mix of coastal prairie, seasonal freshwater marsh, and riparian forest ecotypes.

The conceptual design is shown in Figure 4. Detailed engineering plans will be completed prior to implementation.

Existing or imported clean fill will be used as needed to achieve the desired elevations in the mitigation area. Any additional clean fill from removal of the parking area will be re-used on site or taken off-site to an appropriate facility. The grading work will be performed in the summer to early fall when there is little chance of rain. BMPs will be applied to prevent the soil from impacting the adjacent wetlands as described below in Section 5.

Following grading, the exposed soils will be tested for salinity and nutrients, and soil conditioning will be prescribed as needed. Infiltration rates of the exposed soils will be measured and compared with the requirements for long-duration ponding, which is estimated using hydrologic models. If the soil infiltration rates are higher than anticipated, clean bentonite clay soil amendment will be mixed in with the existing soils to achieve the desired infiltration rates.

Figure 4. Proposed conceptual design for the Mit-7 mitigation area.

4.1.3.2 Comprehensive vegetation specifications

Mit-7 will be converted to a coastal prairie similar to the coastal terrace prairie described by Holland (1986), with groups of riparian trees and shrubs and areas of seasonal freshwater marsh similar to the coastal freshwater marsh described by Holland (1986). The site will be planted with native species appropriate for each habitat (Table 6). Planting zones will be defined by soil and hydrology, based on the initial soil testing and hydrologic monitoring. Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

Table 6. Suggested native plant species for Mit-7.

Scientific name	Common name	Wetland indicator[1]
Coastal prairie		
Armeria maritima	thrift seapink	FAC
Calamagrostis nutkaensis	Pacific reedgrass	FACW
Cardamine oligosperma	bittercress	FAC
Danthonia californica	California oatgrass	FAC
Distichlis spicata	saltgrass	FACW
Deschampsia cespitosa	tufted hair grass	FACW
Festuca rubra	red fescue	FAC
Hordeum brachyantherum	meadow barley	FACW
Iris douglasiana	Douglas iris	NL–UPL
Symphyotrichum chilense	Pacific aster	FAC
Seasonal freshwater marsh		
Angelica lucida		FAC
Bolboschoenus robustus	seacoast bulrush	OBL
Cyperus eragrostis	tall flatsedge	FACW
Juncus lesceurii	San Francisco rush	FACW
Juncus effusus	soft rush	FACW
Mimulus guttatus	monkey flower	OBL
Oenanthe sarmentosa	water parsley	OBL
Potentilla anserina ssp. *pacifica*	Pacific potentilla	OBL
Schoenoplectus acutus var. *occidentalis*	common tule	OBL
Scirpus microcarpus	panicled bulrush	OBL
Riparian scrub/forest		
Alnus rubra	red alder	FAC
Asarum caudatum	wild ginger	FACU
Baccharis pilularis	coyote brush	NL–UPL
Fragaria chiloensis	beach strawberry	FACU
Garrya elliptica	coast silk tassel	NL–UPL
Holodiscus discolor	ocean spray	FACU
Lonicera involucrata	twinberry	FAC
Maianthemum dilatatum	two-leaved false-Solomon's-seal	FAC
Morella californica	wax myrtle	FACW
Picea sitchensis	Sitka spruce	FAC
Pinus contorta ssp. *contorta*	shore pine	NL–UPL
Polypodium calirhiza	licorice fern	NL–UPL

Scientific name	Common name	Wetland indicator[1]
Polystichum munitum	western swordfern	FACU
Ribes sanguineum var. *sanguineum*	red flowering currant	FACU
Rubus ursinus	California blackberry	FACU
Salix hookeriana	dune willow	FACW
Vaccinium ovatum	evergreen huckleberry	FACU

[1] Lichvar et al. (2012 and 2014);
FAC: Facultative wetland plants—occur in wetlands and non-wetlands
FACW: Facultative wetland plants—usually occur in wetlands, but may occur in non-wetlands.
OBL: Obligate wetland plants—almost always occur in wetlands.
NL–UPL: Not listed—upland plants; any species not listed in this publication it is considered an upland plant - almost never occur in wetlands.

4.1.4 Sea-level rise

Mit-7 is located greater than 1,000 ft from the tidal connection with the Intake Canal (at the southeastern corner of the Preserve). The existing intermittent drainage ditch along King Salmon Avenue drains to the south along the road until it connects to the Preserve and from there out through the Intake Canal. There is a slight possibility that a 24.8-in sea-level rise (2050 prediction) or even a 12.5-in (2030 prediction) rise could have a minor influence on the mitigation area. However, the likelihood of this is low because of the wide area of salt marsh in Preserve closer to the inlet that would allow for tidal water to spread out and keep it from reaching Mit-7. If salt water did reach this mitigation area, it would likely only cause a shift to brackish marsh conditions similar to that in Mit-B and would still provide habitat value and ecological function. Most of the mitigation area will not have seasonal ponding, but will be a slightly higher elevation than the adjacent ponds and drainage ditches. The mitigation area would not fail or be eliminated by sea-level rise of either the 2030 or 2050 predicted high-range values.

4.2 ISFSI Stormwater Detention Basin

The western portion of Contractor Parking Lot #2 will be excavated to create a stormwater detention basin that will collect and detain stormwater from Buhne Point hill and the ISFSI area and release it slowly to the Buhne Point Wetland Preserve. The ISFSI stormwater basin will also receive water from the Frog Pond stormwater detention basin. The stormwater detention basin will be located between the road providing access to the ISFSI Support Office and the existing perimeter fence.

4.2.1 Existing ecological conditions

The current condition of the site is a parking lot and laydown/storage area.

4.2.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the ISFSI stormwater detention basin are as follows:

Goal 1: Improve the quality of stormwater flowing from industrial areas into the Buhne Point Wetland Preserve

Objective 1: Establish a vegetative basin with native perennial wetland species

Success criteria:

- 30% cover by native perennial plants
- Less than 2% cover of invasive species

4.2.3 Mitigation implementation

4.2.3.1 Conceptual design

The paved surface cover will be removed and reconfigured and the associated storm drainage system will be graded to route the surface run-off from the ISFSI Support Office parking lot to a collection area. Stormwater will either be allowed to infiltrate through a region of permeable pavement provided in the parking stalls or be directed to an appropriately sized oil/water separator and stormwater conveyance system back to the stormwater detention basin. Stormwater run-off from incidental traffic into and out of the parking area and on the Charlie Road will be allowed to surface-flow directly into the stormwater detention basin. A water control structure will also be installed to receive water from the Frog Pond stormwater detention basin. The design will provide two outfalls from the basin to match the existing locations of current site outfalls; this will minimize hydrologic impacts to the Preserve. Flows from this basin will be released through adjustable weirs into the adjacent Buhne Point Wetland Preserve. The conceptual design is shown in Figure 5. Detailed engineering plans will be completed prior to implementation.

Existing or imported clean fill will be used as needed to achieve the desired elevations in the stormwater basin. Any additional clean fill from removal of the parking area will be re-used on site or taken off-site to an appropriate facility. The grading work will be performed in the summer to early fall when there is little chance of rain. Best Management Practices (BMPs) will be applied to prevent the soil from impacting the adjacent wetlands as described below in Section 5. Following grading, the exposed soils will be tested for salinity and nutrients, and soil conditioning will be prescribed as needed.

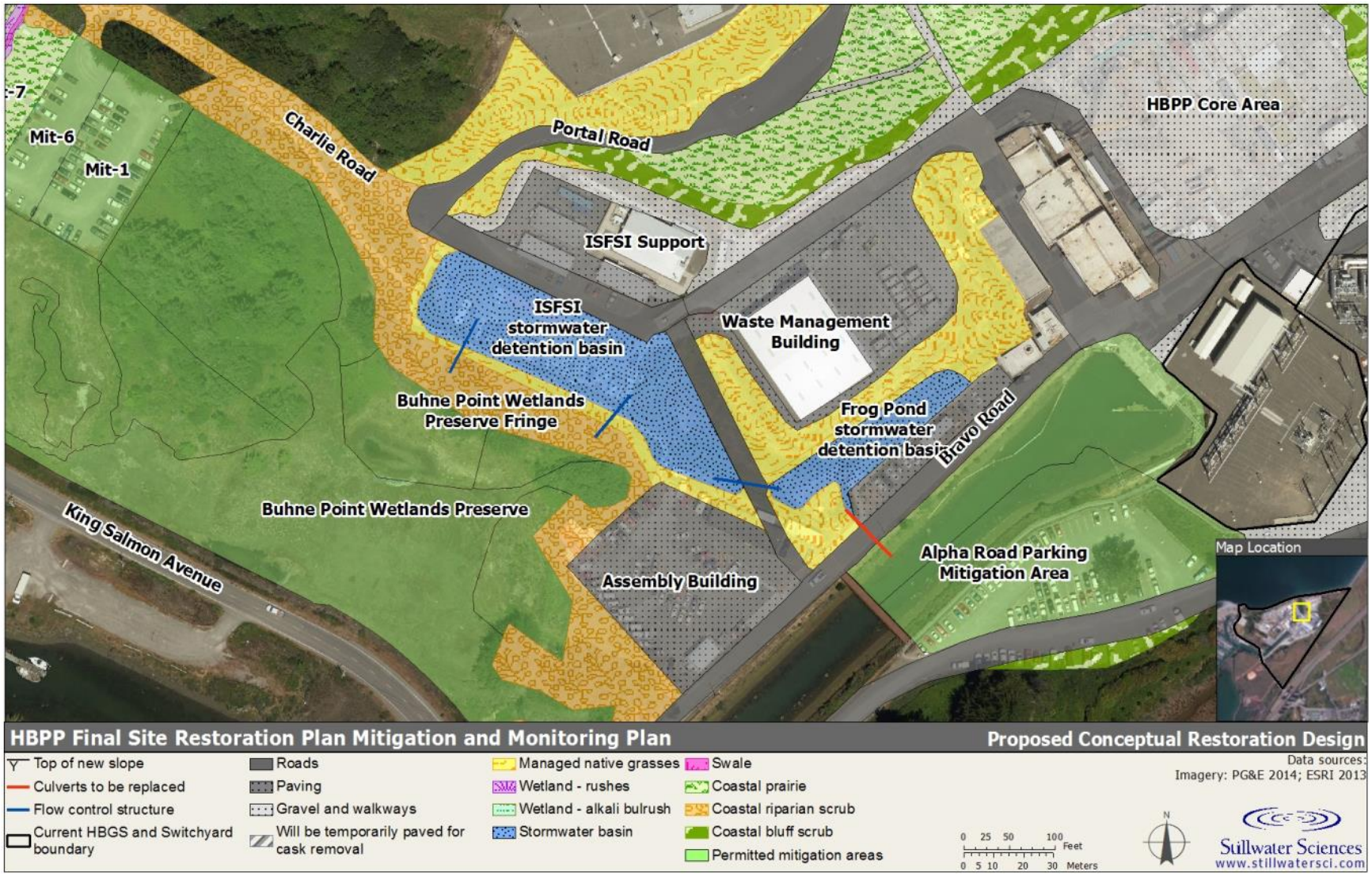

Figure 5. Proposed conceptual design for the ISFSI and Frog Pond stormwater detention basins.

4.2.3.2 Comprehensive vegetation specifications

The ISFSI stormwater drainage basin will be planted with native emergent perennial plant species within the basin, and native grass and low-lying herbaceous plants on the side slopes and upper area (Table 7).

Table 7. Suggested native plant species for stormwater detention basins and rain gardens.

Scientific name	Common name	Wetland indicator[1]
Armeria maritima var. *californica*	thrift seapink	FAC
Bolboschoenus maritimus subsp. *paludosus*	saltmarsh bulrush	OBL
Bolboschoenus robustus	seacoast bulrush	OBL
Bromus carinatus	California brome	NL–UPL
Calamagrostis nutkaensis	*Pacific reedgrass*	FACW
Carex obnupta	slough sedge	OBL
Carex praegracilis	clustered field sedge	FACW
Cyperus eragrostis	tall flatsedge	FACW
Danthonia californica	California oatgrass	FAC
Deschampsia cespitosa	tufted hair grass	FACW
Distichlis spicata	saltgrass	FACW
Eleocharis macrostachya	common spikerush	OBL
Festuca microstachys	small fescue	NL–UPL
Festuca rubra	red fescue	FAC
Fragaria chiloensis	beach strawberry	FACU
Hordeum brachyantherum	meadow barley	FACW
Juncus effusus	soft rush	FACW
Juncus lesceurii	San Francisco rush	FACW
Mimulus guttatus	monkey flower	OBL
Oenanthe sarmentosa	water parsley	OBL
Potentilla anserina ssp. *pacifica*	Pacific potentilla	OBL
Schoenoplectus acutus var. *occidentalis*	common tule	OBL
Scirpus microcarpus	panicled bulrush	OBL
Symphyotrichum chilense	Pacific aster	FAC

[1] Lichvar et al. (2012 and 2014);
FAC: Facultative wetland plants—occur in wetlands and non-wetlands
FACW: Facultative wetland plants—usually occur in wetlands, but may occur in non-wetlands.
OBL: Obligate wetland plants—almost always occur in wetlands.
NL–UPL: Not listed—upland plants; any species not listed in this publication it is considered an upland plant - almost never occur in wetlands.

4.3 Bayview Heights

Bayview Heights will be graded and replanted to create two main vegetation types: coastal prairie on the upper terraces and a low-growing salal/swordfern coastal bluff scrub on the steeper slopes. This area is within the ISFSI Owner Controlled Area fencing and therefore security concerns preclude the establishment of significantly taller vegetation.

4.3.1 Existing ecological conditions

A portion of Bayview Heights to the south and downslope of the ISFSI is currently open space. The vegetation in this area is primarily annual grasses and invasive, non-native vegetation (e.g., *Rubus armeniacus* [Himalayan blackberry], *Cytisus scoparius* [Scotch broom], *Erica lusitanica* [Spanish heather], *Vinca* sp. [periwinkle], and *Cortaderia jubata* [Pampas grass]) that is managed with either mowing or seasonal cutting. Two small wetlands features are located on the upper portion of the area as described above in Section 3.3.3. An additional wetland is located near the ISFSI that is currently protected by construction fencing. This wetland receives water from a French drain that directs water from the ISFSI, through the wetland, then down the slope to Humboldt Bay.

The remainder of the area is industrial. The area east of the ISFSI contains buildings that were formerly associated with Unit 3 decommissioning and open storage areas used for decommissioning laydown. There is also an area that contains construction trailers that provide office space for the decommissioning staff. A pedestrian path connects the ISFSI area with the former HBPP Units 1, 2, and 3.

4.3.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for Bayview Heights are as follows:

Goal 1: Stabilize hillslopes with self-sustaining, low-maintenance native vegetation

Objective 1: Establish native plant landscape

Success criteria:

- 70% cover by native perennial plants
- Less than 2% cover of invasive species

4.3.3 Mitigation implementation

4.3.3.1 Conceptual design

After the structures and any contaminated soils are removed, the area will be graded to remove compacted fill and the invasive plant seed bank in the upper layer of topsoil. Some grading will be done for more efficient access for vegetation establishment and management. Clean soil from the Reactor Vessel Caisson/Spent Fuel Pool Removal Project may also be beneficially re-used in this area. Soils from excavations elsewhere on site may be required to fill any large voids and smooth steep contours left by building and foundation removal.

The Discharge Canal will be filled with soils removed to create wetland depressions in the Shoreline Wetland Mitigation Area and built up to extend the adjacent Bayview Heights slope to the west. Bank stabilization technologies will be used as needed to stabilize slopes steeper than 4:1 (horizontal: vertical). The base of the slope bordering the HBPP Core Area will require special protection. This feature is approximately 364 ft long, ranging in height from 10 to 25 ft, and a part of this area has experienced recent slope failures. To protect the HBPP Core Area from potential impacts, slope limitations or structural improvements, such as a gabion wall structure, may be constructed in this area. Drainage infrastructure and erosion control will also provide required slope protection. The specific stabilization improvement to be used will be determined during detailed design.

The existing wetland near the ISFSI will be enhanced by removing non-native, invasive species (Pampas grass, blackberry), and the protective fencing will be removed to connect to adjacent landscaped areas.

The conceptual design is shown in Figure 6. Detailed engineering plans will be completed prior to implementation.

Figure 6. Proposed conceptual design for the Bayview Heights restoration area.

4.3.3.2 Comprehensive vegetation specifications

To meet PG&E's preference for native plantings that require low maintenance and provide erosion control and a secure line of sight (less than 3 ft tall) for the ISFSI, Bayview Heights will be converted to a coastal prairie similar to the coastal terrace prairie described by Holland (1986) on the upper elevations and coastal bluff scrub on the steeper banks.

The site will be planted with native plant species appropriate for each habitat (Table 8). Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 6 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

Coastal prairie areas could include species such as red fescue (*Festuca rubra*), California brome (*Bromus carinatus*), and California oatgrass (*Danthonia californica*). Coastal bluff scrub areas could include low-growing species such as salal (*Gaultheria shallon*) and swordfern (*Polystichum minitum*).

Table 8. Suggested native plant species for Bayview Heights.

Scientific name	Common name
Coastal prairie	
Bromus carinatus	California brome
Danthonia californica	California oatgrass
Festuca rubra	red fescue
Fragaria chiloensis	beach strawberry
Solidago canadensis	Canada goldenrod
Iris douglasiana	Douglas's iris
Coastal bluff scrub	
Gaultheria shallon	salal
Maianthemum dilatatum	two-leaved false-Solomon's-seal
Arctostaphylos uva-ursi	kinnikinnick
Polystichum munitum	western swordfern
Rubus ursinus	California blackberry

4.3.4 Sea-level rise

This area will be upland vegetation on the higher elevations of the property (10–40 ft). There will be no direct effect of sea-level rise on this restoration area.

4.4 Trailer City Stormwater Detention Basin

The Trailer City stormwater detention basin will be created in the southern end of Trailer City in a portion of intermittent drainage ditch located between Trailer City and HBGS to capture stormwater runoff from the Bayview Heights and HBPP Core Area in partial fulfillment of the site LID requirements.

4.4.1 Existing ecological conditions

The current condition of the site is a paved work area that houses a groundwater treatment system, large sediment management tents, an office trailer, and a laydown/storage area and the Discharge Canal, which is currently being remediated by removing contaminated sediments.

4.4.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for Trailer City stormwater detention basin are as follows:

Goal 1: Improve the quality of stormwater flowing from industrial areas into the Shoreline Wetland mitigation area

Objective 1: Establish a vegetative basin with native perennial wetland species

Success criteria:

- 30% cover by native perennial plants
- Less than 2% cover of invasive species

4.4.3 Mitigation implementation

4.4.3.1 Conceptual design

A portion of the intermittent drainage ditch and the Trailer City work area will be excavated to create a stormwater detention basin that will accept stormwater runoff from the eastern portion of Bayview Heights and the HBPP Core Area. A maintenance and access road will be installed around the basin, per RWQCB requirements. Water flowing from this basin will be released through an adjustable weir into the adjacent Shoreline Wetland mitigation area (see Section 4.5 below). The conceptual design is shown in Figure 7. Detailed engineering plans will be completed prior to implementation.

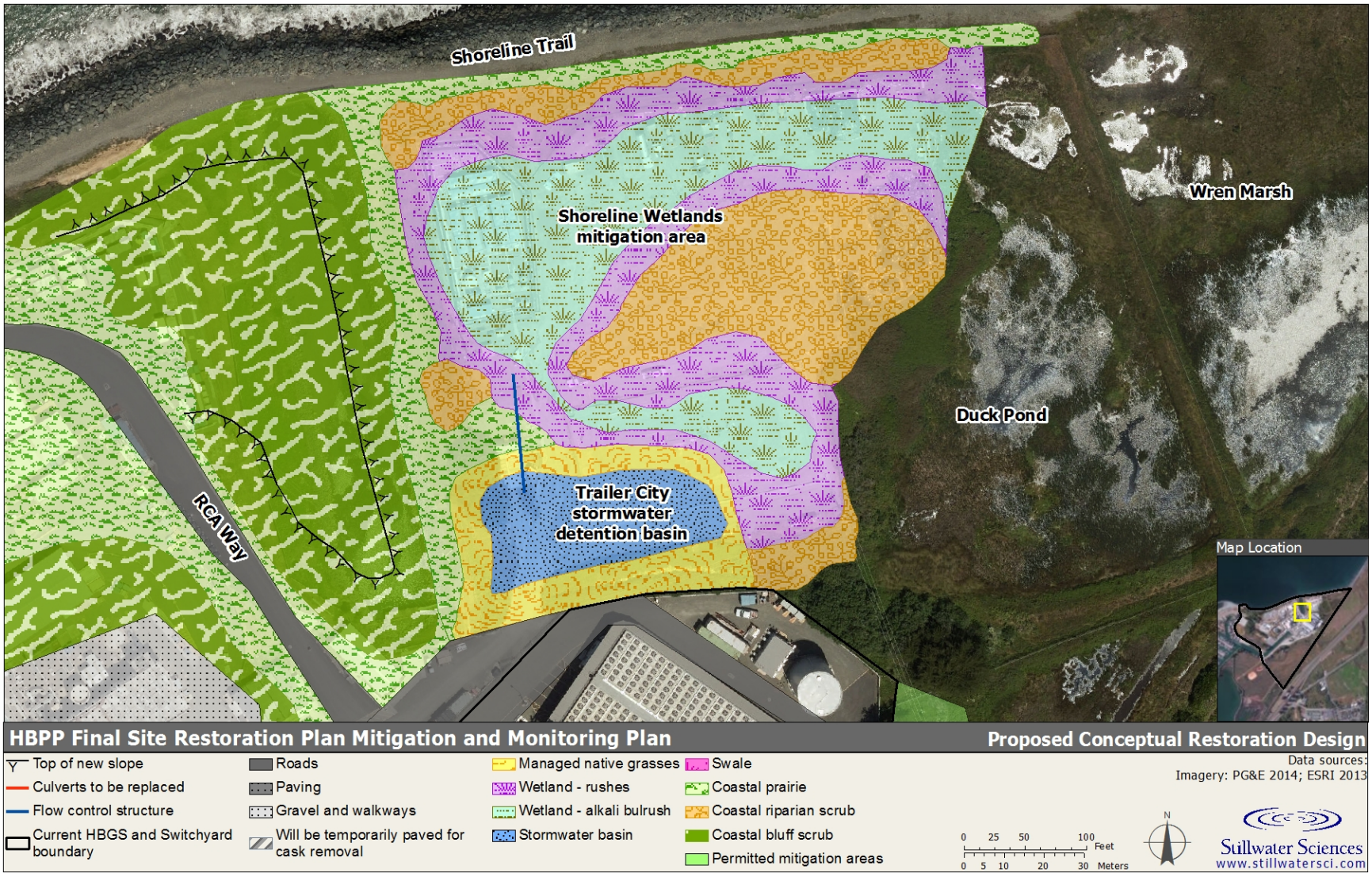

Figure 7. Proposed conceptual design for the Trailer City stormwater detention basin and Shoreline Wetland mitigation area.

4.4.3.2 Comprehensive vegetation specifications

The Trailer City stormwater drainage basin will be planted with native emergent perennial plant species within the basin, and native grass and low-lying herbaceous plants on the side slopes and upper area, similar to the ISFSI stormwater detention basin (Table 7).

4.5 Shoreline Wetland Mitigation Area

The Shoreline Wetland mitigation area will be created to replace the 1.83 ac of CCC-jurisdictional wetlands and 0.06 ac of USACE-jurisdictional wetlands that existed in the area and mitigate for impacts on wetlands in several areas of the HBPP (Section 3). It has been designed to hydrologically connect the Trailer City stormwater basin to the Duck Pond natural area located on the east side of the existing Trailer City. The mitigation area will contain more wetlands than are required for mitigation (Table 4). The additional wetland areas are intended to mitigate for any indirect impacts to wetlands that will occur throughout the site as a result of implementing the final site restoration plan. Trees and shrubs will be planted to screen views of the HBGS from the Shoreline Trail and Humboldt Bay per Condition VIS-5 of the CEC license for HBGS.

4.5.1 Existing ecological conditions

The current condition of the site is a paved work area that houses a groundwater treatment system, RUBB tents for sediment management, an office trailer, and a laydown/storage area and the Discharge Canal, which is currently being remediated by removing contaminated sediments. The Discharge Canal will be used for approximately four years to store soil from the Spent Fuel Pool/Reactor Vessel Caisson Removal Project (CDP E-09-010). As part of the permitting for the Canal Remediation Project (CDP 9-13-0621), the Discharge Canal was considered permanently impacted and was completely mitigated for by creating the Alpha Road Parking mitigation area. The intermittent drainage ditch is relatively narrow (7–24 ft at ordinary high water) with steep banks and heavily vegetated with Himalayan blackberry and *Rubus ursinus* (California blackberry), which does not allow for growth of any emergent vegetation that would treat stormwater. There is currently no control of water entering this drainage ditch that would allow for water treatment before it is released to the Duck Pond. The drainage ditch historically received water through a culvert at the west end, but changes to the stormwater drainage network as part of the Canal Remediation project have removed this connection. Currently, the water input is primarily surface flow from adjacent areas of Trailer City and associated roadways, as well as direct rainfall.

4.5.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the Shoreline Wetland mitigation area are as follows:

Goal 1: Establish a 0.096 ac of USACE and 2.199 ac of CCC jurisdictional wetlands

Objective 1: Create a drainage pattern of basin and swale to increase saturation and promote the formation of hydric soils

Success criterion: Long duration (approximately 21 days) of soil saturation in 0.096 ac

Objective 2: Establish cover in wetland vegetation

Success criteria:

- 70% cover of native vegetation

- At least 50% cover of hydrophytic plants in 2.199 ac

Goal 2: Increase wildlife habitat value and wildlife use

Objective 1: Create structural diversity of vegetation for increased wildlife use

Success criteria:

- 90% survival of planted trees and shrubs
- 30% of wildlife species in observed in comparison site (e.g., Wren Marsh, Duck Pond, Mit-3) will be observed in the mitigation area

4.5.3 Mitigation implementation

4.5.3.1 Conceptual design

Trailer City will be converted to a mosaic of USACE and CCC jurisdictional wetlands. The paved surface will be removed and the area will be graded to remove compacted fill. The Discharge Canal will be filled with soils removed to create wetland depressions and built up to extend the adjacent Bayview Heights slope to the west. The entire site will be recontoured in a pattern of basin, swale, and low hills connecting to the Duck Pond wetland and sloping up to the Shoreline Trail and adjacent Trailer City stormwater detention basin (Figure 7). Following site grading, surface soils will be ripped as needed to create suitable conditions for the vegetation installation. The conceptual design is shown in Figure 7. Detailed engineering plans will be completed prior to implementation.

Existing or imported clean fill will be used as needed to achieve the desired elevations in the mitigation area. Any additional clean fill from removal of Trailer City will be re-used on site or taken off-site to an appropriate facility. The grading work will be performed in the summer to early fall when there is little chance of rain. BMPs will be applied to prevent the soil from impacting the adjacent wetlands as described below in Section 5. Following grading, the exposed soils will be tested for salinity and nutrients, and soil conditioning will be prescribed as needed.

In addition, the existing chain-link fence between the Duck Pond and Wren Marsh will be removed to allow for better wildlife connectivity between the two natural areas. The existing fence along the Shoreline Trail will be replaced along the Shoreline Wetland mitigation area with a wildlife-friendly fence that will protect the mitigation area, but allow for wildlife connectivity.

4.5.3.2 Comprehensive vegetation specifications

The northern edge of the restoration area along the Shoreline Trail and the low hill areas in the middle and southern side of the site identified as coastal riparian scrub on Figure 7 will be planted with native trees and shrubs to form screening vegetation, per the landscape plan submitted to the CEC and CCC as required by the VIS-5 permit condition. Suggested plant species are presented in the riparian scrub forest section of Table 9. Note: these species represent a change to the landscape plan recommended species list (CEC VIS-5) and must be approved by the CEC and reviewed by the CCC prior to planting.

The remainder of the mitigation area will be converted to a mix of coastal prairie, swale, and coastal brackish marsh similar to the ecosystem found in the adjacent Duck Pond wetland. The site will be planted with native species appropriate for each habitat (Table 9). Planting zones will be defined by soil and hydrology, based on the initial soil testing and hydrologic monitoring. Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will

be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

Table 9. Suggested native plant species for Shoreline Wetland mitigation area.

Scientific name	Common name	Wetland indicator[1]
Coastal prairie		
Armeria maritima var. *californica*	thrift seapink	FAC
Calamagrostis nutkaensis	*Pacific reedgrass*	FACW
Cardamine oligosperma	bittercress	FAC
Danthonia californica	California oatgrass	FAC
Deschampsia cespitosa	tufted hair grass	FACW
Festuca rubra	red fescue	FAC
Hordeum brachyantherum	meadow barley	FACW
Iris douglasiana	Douglas iris	NL–UPL
Symphyotrichum chilense	Pacific aster	FAC
Swale and coastal brackish marsh		
Angelica lucida	seacoast angelica	FAC
Bolboschoenus robustus	seacoast bulrush	OBL
Bolboschoenus maritimus subsp. paludosus	saltmarsh bulrush	OBL
Cyperus eragrostis	tall flatsedge	FACW
Distichlis spicata	saltgrass	FACW
Heracleum maximum	cow parsnip	FAC
Juncus lesceurii	San Francisco rush	FACW
Juncus effusus	soft rush	FACW
Mimulus guttatus	monkey flower	OBL
Oenanthe sarmentosa	water parsley	OBL
Potentilla anserina ssp. *pacifica*	Pacific potentilla	OBL
Salicornia pacifica	Pacific pickleweed	OBL
Schoenoplectus acutus var. *occidentalis*	common tule	OBL
Scirpus microcarpus	panicled bulrush	OBL
Riparian scrub/forest		
Alnus rubra	red alder	FAC
Asarum caudatum	wild ginger	FACU
Baccharis pilularis	coyote brush	NL–UPL
Fragaria chiloensis	beach strawberry	FACU
Garrya elliptica	coast silk tassel	NL–UPL
Holodiscus discolor	ocean spray	FACU
Lonicera involucrata	twinberry	FAC
Maianthemum dilatatum	two-leaved false-Solomon's-seal	FAC
Morella californica	wax myrtle	FACW
Picea sitchensis	Sitka spruce	FAC
Pinus contorta ssp. *contorta*	shore pine	NL–UPL
Polypodium calirhiza	licorice fern	NL–UPL
Polystichum munitum	western swordfern	FACU
Rubus ursinus	California blackberry	FACU
Ribes sanguineum var. *sanguineum*	red flowering currant	FACU

Scientific name	Common name	Wetland indicator[1]
Salix hookeriana	dune willow	FACW
Rubus spectabilis	salmonberry	FAC
Sambucus racemosa	red elderberry	FACU
Scrophularia californica	California figwort	FAC
Vaccinium ovatum	evergreen huckleberry	FACU

[1] Lichvar et al. (2012 and 2014);
FAC: Facultative wetland plants—occur in wetlands and non-wetlands
FACW: Facultative wetland plants—usually occur in wetlands, but may occur in non-wetlands.
OBL: Obligate wetland plants—almost always occur in wetlands.
NL–UPL: Not listed—upland plants; any species not listed in this publication it is considered an upland plant—almost never occur in wetlands.

4.5.4 Sea-level rise

The Shoreline Wetlands mitigation area does not have a direct connection to Humboldt Bay. The adjacent Duck Pond's brackish conditions are likely predominantly due to saltwater intrusion from the bay under the coastal trail, groundwater, and waves and spray from Humboldt Bay. The mitigation area will be planted with a mix of species with varying salinity tolerances. This will allow for successful vegetation establishment with several salinity regimes. If sea-level rise causes an increase in salinity due to groundwater intrusion, the species dominance would shift towards more salt-tolerant species. There would not be a loss of ecological function. The mitigation area would not fail or be eliminated by sea-level rise of either the 2030 or 2050 predicted high-range values.

4.6 Contractor Pedestrian Trail

A gravel-surfaced pedestrian trail was created as a walkway for construction workers going from Contractor Parking Lot #1 to the Assembly Building area and from there across the pedestrian bridge to HBGS or down Bravo Road to HBPP. The trail was a temporary construction appurtenance initially under the CEC's jurisdiction that came under CCC jurisdiction with CDP E-09-010. A requirement of this CDP is to remove the trail and restore the area to natural conditions.

4.6.1 Existing ecological conditions

This area contains an approximately 6-ft-wide gravel walkway underlain by geotextile bordered by mowed grasses.

4.6.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the Contractor Pedestrian Trail are as follows:

Goal 1: Establish a native plant community to extend the adjacent habitats in the Buhne Point Preserve

Objective 1: Restore vegetation to native plant species

Success criteria:

- 90% survival of planted trees and shrubs
- At least 70% cover of native perennial herbs or grasses between planted tree and shrub

- Less than 2% cover of invasive species

4.6.3 Mitigation implementation

4.6.3.1 Conceptual design

The gravel and underlying geotextile will be removed and the path graded to remove compacted fill. The area will be recontoured as needed to connect with the ISFSI stormwater detention basin and the Buhne Point Wetland Preserve. Following grading, surface soils will be ripped as needed to create suitable conditions for the vegetation installation. The conceptual design is shown in Figure 8. Detailed engineering plans will be completed prior to implementation.

Figure 8. Proposed conceptual design for the Contractor Pedestrian Trail, Charlie Road, and Buhne Point Wetlands Preserve Fringe restoration areas.

4.6.3.2 Comprehensive vegetation specifications

The area will be become an extension of areas of adjacent ecotypes including coastal prairie, riparian forest/scrub, and the ISFSI stormwater basin. The area will be planted with a mix of native trees, shrubs, and herbaceous species appropriate for each habitat type (Table 10). Planting zones will be guided by existing adjacent vegetation in the Buhne Point Wetlands Preserve and hydrologic and topographic features (e.g., swales, edge of the Preserve). Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

Table 10. Suggested native plant species for the Contractor Pedestrian Trail, Charlie Road, and Buhne Point Preserve Fringe restoration areas.

Scientific name	Common name	Wetland indicator[1]
Coastal prairie		
Armeria maritima var. *californica*	thrift seapink	FAC
Calamagrostis nutkaensis	*Pacific reedgrass*	FACW
Cardamine oligosperma	bittercress	FAC
Danthonia californica	California oatgrass	FAC
Deschampsia cespitosa	tufted hair grass	FACW
Festuca rubra	red fescue	FAC
Hordeum brachyantherum	meadow barley	FACW
Iris douglasiana	Douglas iris	NL–UPL
Symphyotrichum chilense	Pacific aster	FAC
Riparian forest/scrub		
Alnus rubra	red alder	FAC
Asarum caudatum	wild ginger	FACU
Baccharis pilularis	coyote brush	NL–UPL
Fragaria chiloensis	beach strawberry	FACU
Garrya elliptica	coast silk tassel	NL–UPL
Holodiscus discolor	ocean spray	FACU
Lonicera involucrata	twinberry	FAC
Maianthemum dilatatum	two-leaved false-Solomon's-seal	FAC
Morella californica	wax myrtle	FACW
Picea sitchensis	Sitka spruce	FAC
Pinus contorta ssp. *contorta*	shore pine	NL–UPL
Polypodium calirhiza	licorice fern	NL–UPL
Polystichum munitum	western swordfern	FACU
Rubus ursinus	California blackberry	FACU
Salix hookeriana	dune willow	FACW
Rubus spectabilis	salmonberry	FAC
Sambucus racemosa	red elderberry	FACU

Scientific name	Common name	Wetland indicator[1]
Scrophularia californica	California figwort	FAC
Vaccinium ovatum	evergreen huckleberry	FACU

[1] Lichvar et al. (2012 and 2014);
FAC: Facultative wetland plants—occur in wetlands and non-wetlands
FACW: Facultative wetland plants—usually occur in wetlands, but may occur in non-wetlands.
OBL: Obligate wetland plants—almost always occur in wetlands.
NL–UPL: Not listed—upland plants; any species not listed in this publication it is considered an upland plant—almost never occur in wetlands.

4.6.4 Sea-level rise

This upland area will be restored with salt-tolerant species common to the local coastal environment. Sea level rise is not expected to have any direct effects on this area. Should sea level rise cause a shift in the adjacent Buhne Point Wetlands Preserve towards more brackish ecotypes, the species planted in the restoration area would potentially shift in dominance towards more salt-tolerant species (e.g., dune willow and Sitka spruce). The wide variety of native species chosen for this area will enable this shift to happen without a loss of ecosystem function. The enhancement area would not fail or be eliminated by sea-level rise of either the 2030 or 2050 predicted high-range values.

4.7 Buhne Point Wetland Preserve Fringe Area

The Buhne Point Preserve Fringe is an area along the southeast margins of the preserve that is not legally or ecologically located within the boundaries of the Preserve. The restoration of this area to native plant species will mitigate for temporary and temporal impacts to wetlands that will occur as part of the implementation of the FSR plan.

4.7.1 Existing ecological conditions

This area contains upland plant species including grasses and non-native trees and is currently mowed and maintained as a landscaped area.

4.7.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria the Buhne Point Wetlands Preserve Fringe are as follows:

Goal 1: Establish a native plant community to extend the adjacent habitats in the Buhne Point Wetlands Preserve

Objective 1: Restore vegetation to native plant species

Success criteria:

- 90% survival of planted trees and shrubs
- At least 70% cover of native perennial herbs or grasses between planted tree and shrub
- Less than 2% cover of invasive species

Goal 2: Maintaining and enhance wildlife habitat value and use

Objective 1: Create standing snags and perches

Success criterion: Observe wildlife use (e.g., bird perching, resting, foraging) of snags

Objective 2: Enhance wildlife connectivity to the Buhne Point Preserve
Success criterion: Observe wildlife movement between the adjacent mitigation areas of the Buhne Point Preserve (e.g., Mit-3, Mit-B, Mit-A, Mit-4a and 4b)

4.7.3 Mitigation implementation

4.7.3.1 Conceptual design

This area will be restored with native plant species to provide continuity of native landscaping between the developed area and the adjacent habitats in the Buhne Point Preserve and the Contractor Pedestrian Trail. The non-native trees in this area (which include Monterey cypress and eucalyptus) will be assessed for habitat suitability. Two to three trees may be limbed and girdled to maintain as wildlife snags. The remainder of the non-native trees will be removed; some with exposed stumps to provide for additional structural diversity for wildlife as well as insects, and fungi/lichens. All trees removed will be replaced at a 2:1 ratio with native tree species (described below). The area will not be graded, but surface vegetation (non-native grass sod) will be removed and the soil will be tilled and amended as needed to remove as much of the seed bank as possible and create suitable conditions for vegetation installation. The conceptual design is shown in Figure 9. Detailed engineering plans will be completed prior to implementation.

4.7.3.2 Comprehensive vegetation specifications

The area will be planted with a mix of native trees, shrubs, and herbaceous species (Table 10). Planting zones will be guided by existing adjacent vegetation in the Buhne Point Wetlands Preserve and hydrologic and topographic features (e.g., swales, edge of the Preserve). Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 01 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

4.7.4 Sea-level rise

This upland area will be restored with salt-tolerant species common to the local coastal environment. Sea level rise is not expected to any direct effects on this area. Should sea level rise cause a shift in the adjacent Buhne Point Wetlands Preserve towards more brackish ecotypes, the species planted in the enhancement area would potentially shift in dominance towards more salt-tolerant species (e.g., dune willow and Sitka spruce). The wide variety of native species chosen for this area will enable this shift to happen without a loss of ecosystem function. The enhancement area would not fail or be eliminated by sea-level rise of either the 2030 or 2050 predicted high-range values.

4.8 Frog Pond stormwater basin

The existing Frog Pond stormwater basin will be redesigned to improve stormwater retention and treatment by making a larger, deeper basin and to fill in the area around the existing sewer lift station on three sides for better access.

4.8.1 Existing ecological conditions

The Frog Pond is a combination of semi-permanently and seasonally flooded palustrine persistent emergent wetland (Stillwater Sciences 2015). At least 6 inches of sediment has accumulated in the basin, which appears to be saturated year-round, with no standing water. The lowest portion of the basin is currently dominated by *Typha* sp. (cattail), which has recently died off due to saltwater intrusion from the Intake Canal, and areas of *Distichlis spicata* (saltgrass) and *Salicornia pacifica* (pickleweed) have begun to establish. Much of the rest of the basin consists of sloped areas dominated by non-native invasive grasses as well as the invasive Spanish heather and Pampas grass and a few native (*Morella californica*) (wax myrtle) and *Salix hookeriana* (dune willow).

4.8.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the Frog Pond stormwater detention basin are as follows:

Goal 1: Improve the quality of stormwater flowing from industrial areas into the Buhne Point Wetland Preserve

Objective 1: Establish a vegetative basin with native perennial wetland species

Success criteria:

- 30% cover by native perennial plants
- Less than 2% cover of invasive species

4.8.3 Mitigation implementation

4.8.3.1 Conceptual design

Restoration in this area will involve grading and replanting to improve stormwater retention and treatment and remove and manage for invasive species. Access to the sewer lift station will be improved by filling in around it. Flows to this basin will be increased by channeling a portion of the HBPP Core Area stormwater runoff in this direction. In addition, flows into the detention basins from paved areas will be retained in the basin to remove large debris and particles.

This basin will be connected with the ISFSI stormwater detention basin. Stormwater will flow from this basin to the ISFSI basin through an adjustable-height weir. Water captured in this basin will eventually be released into the Buhne Point Wetlands Preserve via the ISFSI basin outfalls. A culvert connected to the Intake Canal will be replaced and retained for maintenance purposes so that it is easier to drain the basin for maintenance and for emergency overflow (for storm events larger than a 25-year storm), per RWQCB requirements.

The conceptual design is shown in Figure 5. Detailed engineering plans will be completed prior to implementation.

4.8.3.2 Comprehensive vegetation specifications

The Frog Pond stormwater drainage basin will be planted with native emergent perennial plant species within the basin and native grass and low lying herbaceous plants on the side slopes and upper area similar to the ISFSI stormwater detention basin (Table 7).

4.9 Charlie Road

4.9.1 Existing ecological conditions

This area is currently a paved roadway bordered by mowed grasses.

4.9.2 Mitigation goals, objectives, and success criteria

Goal 1: Establish a native plant community to extend the adjacent habitats in the Buhne Point Preserve and Buhne Point

Objective 1: Restore vegetation to native plant species

Success criteria:

- 90% survival of planted trees and shrubs
- At least 70% cover of native perennial herbs or grasses between planted tree and shrub
- Less than 2% cover of invasive species

4.9.3 Mitigation implementation

4.9.3.1 Conceptual design

The road surface will be removed and the area will be graded to remove compacted fill. The area will be recontoured to connect with the adjacent natural areas. Following site grading, surface soils will be ripped as needed to create suitable conditions for planting vegetation. Soils will be tested for salinity and nutrients, and soil conditioning will be prescribed as needed.

The conceptual design is shown in Figure 8. Detailed engineering plans will be completed prior to implementation.

Existing or imported clean fill will be used as needed to achieve the desired elevations in the mitigation area. Any additional clean fill from removal of the road base will be re-used on site or taken off-site to an appropriate facility. The grading work will be performed in the summer to early fall when there is little chance of rain. Best Management Practices (BMPs) will be applied to prevent the soil from impacting the adjacent wetlands as described below in Section 5.

4.9.3.2 Comprehensive vegetation specifications

The area will become an extension of areas of adjacent ecotypes including coastal prairie and riparian forest/scrub. The area will be planted with a mix of native trees, shrubs, and herbaceous species appropriate for each habitat type (Table 10). Planting zones will be guided by existing adjacent vegetation, hydrologic, and topographic features (e.g., swales, hillslope). Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

4.9.4 Sea-level rise

The Charlie Road restoration area, though close in proximity, does not have a direct connection to Humboldt Bay. It is also sheltered from waves and salt spray by Buhne Point. The restoration area will be planted with a mix of species with varying salinity tolerances. If sea-level rise causes

an increase in salinity due to groundwater intrusion, the species dominance would shift towards more salt-tolerant species. There would not be a loss of ecological function. The restoration area would not fail or be eliminated by sea-level rise of either the 2030 or 2050 predicted high-range values.

4.10 Alpha Road Overflow Parking Areas

Two small overflow parking areas along the east side of Alpha Road will be removed and restored.

4.10.1 Existing ecological conditions

These areas are currently graveled parking areas.

4.10.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the Alpha Road overflow parking areas are as follows:

Goal 1: Establish a self-sustaining, low-maintenance, native plant community

Objective 1: Establish native plant landscape

Success criteria:

- 70% cover by native perennial plants
- Less than 2% cover of invasive species

4.10.3 Mitigation implementation

4.10.3.1 Conceptual design

The gravel surface of the parking areas will be removed and the areas will be graded to remove compacted fill. The area will be recontoured to connect with the adjacent natural areas. Following site grading, surface soils will be ripped as needed to create suitable conditions for planting vegetation.

The conceptual design is shown in Figure 9. Detailed engineering plans will be completed prior to implementation.

Existing or imported clean fill will be used as needed to achieve the desired elevations in the mitigation area. Any additional clean fill from removal of the parking areas will be re-used on site or taken off-site to an appropriate facility. The grading work will be performed in the summer to early fall when there is little chance of rain. BMPs will be applied to prevent the soil from impacting the adjacent wetlands as described below in Section 5.

Following grading, the exposed soils will be tested for salinity and nutrients, and soil conditioning will be prescribed as needed. Infiltration rates of the exposed soils will be measured and compared with the requirements for long-duration ponding, which is estimated using hydrologic models. If the soil infiltration rates are higher than anticipated, clean bentonite clay soil amendment will be mixed in with the existing soils to achieve the desired infiltration rates.

Figure 9. Proposed conceptual design for the Alpha Road overflow parking areas.

4.10.3.2 Comprehensive vegetation specifications

The Alpha Road parking areas will be planted with coastal bluff scrub vegetation (Table 8). Vegetation will be propagated either through seed or nursery stock. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

4.11 Rain Gardens

Rain gardens will be created at strategic places around the property. The locations of these will be shown on the grading and drainage plan that will be completed prior to implementation. These are small vegetated swales designed to capture and treat stormwater runoff.

4.11.1 Existing ecological conditions

The rain gardens will be located in areas that are currently parking or laydown areas, roadways, or mowed grass and managed vegetation alongside existing roads.

4.11.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for the rain gardens are as follows:

Goal 1: Improve the quality of stormwater runoff

Objective 1: Establish vegetative swales with native perennial wetland species

Success criteria:

- 30% cover by native perennial plants
- Less than 2% cover of invasive species

4.11.3 Comprehensive vegetation specifications

The site rain gardens will be planted with native emergent perennial plant species (Table 7).

4.12 Restoration of Temporary Impacts: Alpha Road, Intake Canal, Buhne Point Wetlands Preserve, and Duck Pond Temporary Impacts

Implementation of the proposed FSR plan will permanently or temporarily impact several wetland area around the HBPP site. Areas of permanent wetland impact are described above. Temporary impacts will occur in the following locations:

- Buhne Slough wetlands during the Alpha Road realignment and a culvert replacement at the north end of the Alpha Road Parking Area,
- in the Intake Canal during two culvert replacements (connecting to the Frog Pond stormwater detention basin and the Buhne Point Wetlands Preserve),
- in the Frog Pond during the grading and restoration of the stormwater detention basin,
- in the Duck Pond when the Shoreline Wetland mitigation area is created and connected to the existing adjacent wetland, and

- in the seasonal wetlands along King Salmon Avenue near the lower contractor parking area when Mit-7 is created and connected to the existing adjacent wetland.

These areas will be restored in the same location immediately following the temporary impacts from construction activities.

4.12.1 Existing ecological conditions

The temporarily impacted areas are a mix of fresh and brackish wetlands, waters of the U.S., and adjacent coastal prairie habitat.

4.12.2 Mitigation goals, objectives, and success criteria

The goals, objectives, and success criteria for restoration in temporarily impacted areas are as follows:

Goal 1: Restore temporarily impacted areas

Objective 1: Establish native vegetation

Success criterion: percent cover is at least 95% of pre-construction density

Success criteria:

- 70% of cover is made up of native plants
- Less than 2% cover of invasive species

4.12.3 Mitigation implementation

Impacted areas will be recontoured to match previous or adjacent contours. Clean fill will be used as needed to fill in any voids left by the work (e.g., removing the pedestrian bridge footings). There are no conceptual plans for these areas.

4.12.3.1 Comprehensive vegetation specifications

Impacted areas will be assessed and planted with native species to match previous or adjacent ecotypes (Table 11). Non-native species will be removed from the impact area prior to planting. Planting densities will range from one plant per 1 ft^2 to one plant per 9 ft^2, depending on the species. Seedlings and seed will be procured and installed by a qualified contractor. As much as possible, local plant stock collected around Humboldt Bay and growing under similar ecological conditions (e.g., soils, depth to groundwater) will be used.

Table 11. Suggested native plant species for temporarily impacted areas.

Scientific name	Common name	Wetland indicator[1]
Salt marsh		
Salicornia pacifica	Pacific pickleweed	OBL
Distichlis spicata	salt grass	FACW
Triglochin maritima	common arrow-grass	OBL
Coastal prairie		
Armeria maritima var. *californica*	thrift seapink	FAC
Calamagrostis nutkaensis	*Pacific reedgrass*	FACW
Cardamine oligosperma	bittercress	FAC
Carex praegracilis	clustered field sedge	FACW
Carex obnupta	slough sedge	OBL
Danthonia californica	California oatgrass	FAC

Scientific name	Common name	Wetland indicator[1]
Deschampsia cespitosa	tufted hair grass	FACW
Distichlis spicata	saltgrass	FACW
Festuca rubra	red fescue	FAC
Hordeum brachyantherum	meadow barley	FACW
Juncus effusus	soft rush	FACW
Juncus lesceurii	San Francisco rush	FACW
Symphyotrichum chilense	Pacific aster	FAC

[1] Lichvar et al. (2012 and 2014);
FAC: Facultative wetland plants—occur in wetlands and non-wetlands
FACW: Facultative wetland plants—usually occur in wetlands, but may occur in non-wetlands.
OBL: Obligate wetland plants—almost always occur in wetlands.
NL–UPL: Not listed—upland plants; any species not listed in this publication it is considered an upland plant—almost never occur in wetlands.

4.12.4 Sea-level rise

The areas needing restoration for temporary impacts will be restored to the original native ecotypes. Species chosen will have a range for salinity tolerance and are expected to be able to withstand a shift to more brackish conditions that will come with increasing sea levels.

5 PROPOSED BEST MANAGEMENT PRACTICES

In addition to best management practices detailed in the Project SWPPP, the following measures have been proposed to minimize impacts on natural resources as a result of FSR plan implementation. A qualified biologist will provide environmental awareness training to all construction personnel prior to the start of construction. The training will include descriptions of any species or habitats of concern in the Project area and a review of all conservation measures and BMPs that will be implemented during the FSR plan implementation.

5.1 Wetlands

- Construction areas will be minimized to the extent possible to avoid impacts to existing wetlands.
- In-water work will be avoided to the extent possibly by working during periods of low tide and working during the summer dry season.
- Silt fencing will be installed as needed to protect adjacent wetland ecosystems from sediment input from construction sites.

5.2 Plants

- Protocol-level special-status plant surveys will be conducted during the appropriate blooming times to identify whether any special-status plants are present in the Project area as well as to evaluate any potential effects on known occurrences. If special-status plant species are documented in the Project area and cannot be avoided, an attempt will be made to relocate the plants to comparable habitat in the Buhne Point Wetlands Preserve or another suitable location on-site, in coordination with appropriate agencies.

- Construction areas will be minimized to the extent possible to avoid impacts to existing native plant populations.
- Areas will be assessed prior to construction to determine if any native plants should be salvaged and transplanted into other areas of the site or returned to the nursery for propagation.
- When working in vegetated areas, the following practices will be employed to limit spread of invasive plants
    - Remove or treat seed sources of viable reproducing invasive plant parts that could spread due to construction disturbance (e.g., cut Pampas grass and other seed heads prior to germination).
    - Avoid moving weed-infested materials (i.e., gravel, and other fill materials) to weed-free locations.
    - Prior to entering or leaving the project site, vehicles and equipment (including undercarriages) should be inspected for seeds or plant parts. If plant parts are found, clean vehicles and equipment of all mud, dirt, and plant parts.
- Only weed-free, native seed will be used on site. Seed mixes will be verified by the project biologist prior to spreading to ensure:
    - The species are approved by PG&E for use at HBPP.
    - The seed mix does not contain invasive plants. Note: seed that is certified to be "noxious weed free" may still contain non-native invasive plants that are not included on the California Department of Food and Agriculture noxious weed list.
- Impact areas will be assessed prior to construction to determine if there are any plants that would be appropriate to salvage or use as a seed source. If so, plants will be salvaged for propagation at local a nursery for later use or transplanting directly to a restoration or mitigation area.

5.3 Wildlife

The following proposed protection measures will minimize the risk of impacts on the northern red-legged frogs, Townsend's and pallid bats, and bird species protected by the Migratory Bird Treaty Act.

- Prior to construction within suitable amphibian habitat, an amphibian rescue effort will be conducted in an attempt to clear the area of individuals that are present. Eggs may be present during the breeding season (October through early March), tadpoles during the pre-metamorphosis season (March through August), and adults year-round. Any egg masses, tadpoles, or adults captured will be relocated to suitable habitat (e.g., within the existing Mit-2 pond in the Buhne Point Wetlands Preserve).
- A biological monitor will be present during activities that impact or remove wetlands and amphibian habitat. Once the habitat is removed, a biological monitor will no longer be required.
- If work occurs during the bird nesting season (February 15 to August 31), a pre-construction nesting bird survey will be conducted by a qualified biologist within one week prior to commencement of construction activities, including clearing any vegetation or ground disturbance. If active nests are found, appropriate buffers will be established and communication with agencies on further action will be conducted. In accordance with the Federal Migratory Bird Treaty Act, if an active bird nest is observed within or near Project

construction sites, work will cease, care will be take not to harm the nest, and the work supervisor will contact the project-designated PG&E Biologist.

- Biologist will survey for cavities, suitable for Townsend's and/or pallid bat roosting habitat, at any tree slated for removal as part of the FSR plan implementation. If such a cavity is identified, an assessment of bat use will be initiated by a qualified wildlife biologist. If the cavity shows bat habitation, then the tree and a screen of trees immediately surrounding it, if present, will be retained.

6 MONITORING METHODS

Annual monitoring will occur for a minimum of three years and up to five years. If all the success criteria for a mitigation or restoration area are met for two successive years prior to the end of the five-year monitoring period (i.e., years 2 and 3, or years 3 and 4), then the annual monitoring and maintenance for that area will cease and a final report demonstrating success of the mitigation will be prepared and submitted to the appropriate agencies (see Section 7).

6.1 Wetlands

Hydrologic condition surveys will take place following the first significant rainfall event that brings greater than 2 in of rain in a two-week period. The first year after construction, the first survey will be followed weekly for three consecutive weeks (for a total of four surveys). A two-person team will map the boundary of visible inundation in the Shoreline Wetland mitigation area using a sub-meter GPS. Areas of inundation will then be calculated using GIS software. Successive years will survey during the first and fourth weeks with a GPS unit with site visits during interim weeks to confirm the area is remaining saturated for the entire survey period.

At the end of the monitoring period, a wetland delineation will be conducted using the USACE Western Mountain Coast and Valley Region standard protocols to determine the amount of wetlands created in each restoration and mitigation area.

6.2 Plants

Mitigation and restoration areas will be monitored twice annually to evaluate vegetation establishment, re-vegetation success, and native and non-native plant recruitment. Monitoring will occur in spring and summer, to capture the blooming periods of herbaceous plant species to facilitate accurate species identification and precise assessments of the percent of vegetation and species cover. Sample plots or transects will be used to estimate the total plant cover and cover of individual plant species. Total cover, percent cover by species, percent hydrophytic vegetation, and percent of native versus non-native vegetation will calculated, averaged across all plots, and compared with the annual performance objectives (Table 5). To illustrate site changes over time, photographs will be taken during the monitoring efforts at set photopoint locations established throughout the mitigation area.

Native and non-native status will be determined using current Calflora and Cal-IPC databases. Invasive plants are defined as those species with a high rating on the most current Cal-IPC Invasive Plant Inventory Database.

6.3 Wildlife

Wildlife surveys will record the use of amphibians, reptiles, birds, and mammals within a mitigation area. When required by the applicable success criteria, adjacent or comparable habitats will be surveyed. The comparison sites for wildlife monitoring will be determined during the first year of monitoring in order to select the most comparable or similar habitat type; hydrology and vegetation in the comparison site may change by the time the monitoring of the mitigation sites are implemented. The intention is to identify a comparison site(s) that is established, at a later successional stage than the mitigation site, and similar to the habitat to the goal of the mitigation site.

Surveys will be conducted quarterly to sample presence and varying life stages of wildlife species. Methods for sampling include the search method which consists of spending a minimum of 10 minutes in each mitigation area to document the direct observation of amphibians (egg mass, juvenile, adult), reptiles, birds, and mammals or any evidence that indicated their presence (e.g., tracks, scat, feathers/hair, browsing of vegetation). Birds will be considered using the habitat if they are observed perching, nesting, and/or foraging on or gleaning insects on the wing. Birds flying overhead at a significant enough elevation to not be foraging and thus not using the restored habitat would not be included. Surveys will be initiated in the morning and conducted during calm weather. Representative species and habitat photos will be taken and reported.

7 REPORTING

Results of the annual monitoring of the mitigation areas will be summarized in a report and distributed to the appropriate regulatory agencies. These reports will present a summary of the data collected and present conclusions regarding whether the annual performance objectives are being met and, if needed, provide recommendations for adaptive management (i.e., additional planting and/or weeding). Reports will include the following sections:

- Introduction
- Maintenance activities performed
- Monitoring methods
- Monitoring results (e.g., qualitative and quantitative results compared with baseline data from the initial planting, comparisons with previous years' data, etc.)
- Time-series photographs
- Status of achievement towards success criteria
- Recommendations for adaptive management
- Agency signature page for approval of completion of monitoring requirement

At the end of the monitoring period, a final report demonstrating success of the mitigation will be prepared and submitted to the appropriate agencies for approval and concurrence that the success criteria have been met and monitoring is completed. Reporting will discontinue once all success criteria have been met.

8 MAINTENANCE

8.1 Annual Maintenance during Monitoring Period

Plant protectors will not be installed initially. If herbivory damage is noted during the annual monitoring and is found to be impacting seedling success to the extent that the success standards may not be attained, then plant protectors will be installed. Herbaceous vegetation will be planted immediately prior to the wet season; therefore, irrigation will not be planned initially for newly planted vegetation. However, if it appears that vegetation is not establishing due to dry hydrologic conditions, the plants may be watered during the first few years after planting to help them establish.

Restoration and mitigation areas will undergo annual maintenance during the monitoring period. Annual monitoring will note any invasive plant species that should be removed from the area and any plants that are not establishing, and indicate where adaptive management is needed. Maintenance activities will be directed as needed based on the results of the annual monitoring. Maintenance may include watering (either by hand or with an irrigation system), installation and maintenance of plant protectors as needed, mulching, weeding in the immediate vicinity of planted vegetation to reduce competition, and removal of non-native plants throughout the area.

Areas of coastal prairie and managed native grasses will be mowed and/or cut with a brush cutter (weed whacker) either annually or seasonally, as needed. Mowing will be done to a high level to mimic grazing. Management frequency will be recommended by the project biologist during the monitoring period based on site conditions.

In the unlikely instance that the stormwater detention basins would need to be cleaned of accumulated sediment, the project biologist will be consulted to recommend minimization and avoidance measures and to prescribe restoration. Any areas requiring restoration will be monitored annually until the area has reached 80% of its pre-impact percent cover.

8.2 Long-term Maintenance

After mitigation success criteria are met, PG&E will be responsible for the upkeep and maintenance of the mitigation site as part of normal maintenance operations. These responsibilities will include keeping the site free of litter, major infestations of noxious weeds, and populations of feral animals including cats or other escaped or released pets or farm animals, and protecting against unlawful trespass. Protection of the mitigation and restoration areas will be addressed during any proposed land use changes on adjoining PG&E property that may result in detrimental changes in site hydrology or vegetation. Public access to the site will be allowed for scientific research or educational or artistic uses (photography, painting) and will be facilitated by PG&E for all legitimate written requests.

9 ADAPTIVE MANAGEMENT

If results from the annual monitoring indicate that the success criteria have not been met or are not likely to be met by the end of the five-year monitoring period, then additional maintenance and/or remedial action (e.g., additional planting) will be specified. Any maintenance or remedial action determined to be necessary will be initiated as soon as feasible to increase the likelihood of timely success. The mitigation areas are complex ecological systems, each with a unique variety

of environmental influences including fluctuating hydrologic conditions, weather conditions, plant viability, and invasive weed colonization. Because of this, no set strategy is appropriate for all the areas and adaptive management is the best way to effectively plan for the success of the mitigation areas.

10 EXPECTATION OF SUCCESS

Wetland creation in the Mit-7 and Shoreline Wetland mitigation areas is anticipated to be successful because the newly created areas will be connected hydrologically to the adjacent existing or proposed wetlands. Newly planted wetland plants are expected to readily establish in the new habitat and likely spread from adjacent areas. Additionally, prior to grading and creation of the wetland mitigation areas, soil infiltration testing will be performed and the soil will be amended as needed to achieve the desired infiltration rates. Selecting a variety of native plants with different saltwater tolerance will allow the species to adapt to changes in salinity as a result of changing site conditions or sea level rise. Native plants are also adapted to the region and will have a higher likelihood of successful establishment and growth in the coastal, often exposed, environment at the HBPP site.

Wetland restoration areas are expected to be successful because the ecosystems proposed for restoration will be similar to the ones that existed prior to impacts. Often, impacts will be small in size, which will allow adjacent native plants to spread to the impacted area.

Annual monitoring and maintenance will help track the growth and establishment of the vegetation. If it appears over time that the final success criteria will not be achieved, adaptive management (e.g., additional planting, invasive plant species removal) will be proposed for permitting agency approval and implemented.

11 AGENCY APPROVAL

In order to provide a mechanism for agency acknowledgement of adaptive management actions and completion of monitoring when a mitigation area has completed the required monitoring period and met its success criteria, an agency approval section will be included in applicable annual monitoring reports. This section will contain a status summary of each mitigation and restoration area and a signature page for each agency to acknowledge and approve modifications related to adaptive management or performance success and completion if they concur with the submitted findings. Once approval has been granted for performance success and completion of required monitoring, the management and monitoring of the mitigation area will transition to the Operations and Maintenance Plan (Section 8.2).

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Appendix D
Wetland Delineation Report

FINAL REPORT ◦ APRIL 2015

Preliminary Delineation of Waters and Wetlands for the PG&E Humboldt Bay Power Plant Final Site Restoration Plan, Humboldt County, California

PREPARED FOR

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Suggested citation:
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Cover photos: Wetland delineation area, Humboldt Bay Power Plant, Stillwater Sciences 2015.

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1 INTRODUCTION

1.1 Project Description and Proponent

Pacific Gas and Electric Company (PG&E) is decommissioning the Humboldt Bay Power Plant (HBPP) located on its 75-acre site near King Salmon, Humboldt County, California. The HBPP consisted of two steam generating units (Units 1 and 2) and a boiling water nuclear reactor (Unit 3). PG&E operated the HBPP between 1956 and 2010. In 2010, the Humboldt Bay Generating Station (HBGS), located on the same property, began operation to replace the former generation capacity of the HBPP Units 1, 2, and 3. PG&E has prepared a Final Site Restoration plan (FSR) plan for the HBPP property, which includes the following purposes and features:

- Reconfigure those portions of the site that are needed for on-going and future utility operation uses of the property;
- Implement biological resources mitigation prescribed in previous California Coastal Commission (CCC) permit proceedings or those that will be required due to the effects of implementing this FSR plan, such as those resulting from the creation of new wetlands;
- Restore to pre-existing conditions, those portions of the property that are not identified for ongoing utility operations;
- Re-route or repair drainage, establish new storm water detention basins, and grade the site to maximize implementation of Low Impact Development (LID) measures;
- Re-route, repair, or remove communications and other infrastructure on the property as needed; and
- Remediate contaminated soil in areas that involve FSR construction and that were not previously permitted by the CCC and are not located in wetlands. Soil remediation in any area identified as a jurisdictional wetland would be addressed under a separate plan.

The Project proponent and property owner, PG&E, may be contacted at:

Mark Smith, HBPP Engineering Manager
Humboldt Bay Power Plant
1000 King Salmon Avenue
Eureka, CA 93305
(707) 444-0844
MGS1@pge.com

1.2 Project Location and Survey Area

The HBPP property is located at 1000 King Salmon Avenue in King Salmon, CA (Figure 1). It is located in unincorporated Humboldt County approximately 3 miles south of the City of Eureka. The HBPP property is bordered to the north by Humboldt Bay, to the south and east by diked former salt marsh, and to the west by the residential and commercial community of King Salmon. The survey area is located in Section 8 of Township 4 North, Range 1 West, of the Fields Landing, California, U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle at approximate latitude 40°44’28.77”N and longitude 124°12’35.07”W. The elevation of the survey area ranges from approximately 4 to 32 feet above mean sea level. It can be accessed via the King Salmon Avenue exit on U.S. Highway 101, heading west on King Salmon Avenue, and turning right into the HBPP Bravo Road entrance (Figure 2). Access is by permission of PG&E on-site security only.

The water and wetland review area (i.e., survey area) is a 5-acre portion of the 75-acre HBPP property that includes all areas that may be affected by the FSR plan (Figure 2). Previous wetland delineations were conducted in this area and have been verified by the USACE in 2006 and 2009 for the HBGS and HBPP decommissioning projects (CH2M Hill 2006, Mad River Biologists *et al*. 2009, Mad River Biologists 2010). However, as a result of the decommissioning activities in the area, site conditions have changed considerably since those previous wetland delineations and an updated delineation was needed.

1.3 Purpose of the Wetland Delineation

This delineation of waters and wetlands evaluates the potential impacts to these resources that could occur as a result of implementing the FSR plan. The purpose of this delineation is to: (1) assess the geographic extent of water and wetland resources in the survey area; (2) delineate any waters of the U.S. that are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) and/or Section 10 of the Rivers and Harbors Act; (3) delineate any waters of the State that may be subject to the jurisdiction of the State Water Resources Control Board (SWRCB) and/or California Coastal Commission (CCC); and (4) delineate open waters (e.g., lakes and streams) that may be subject to California Fish and Game Code Section 1602. This report is considered preliminary until verified by the San Francisco Regulatory Branch of the USACE.

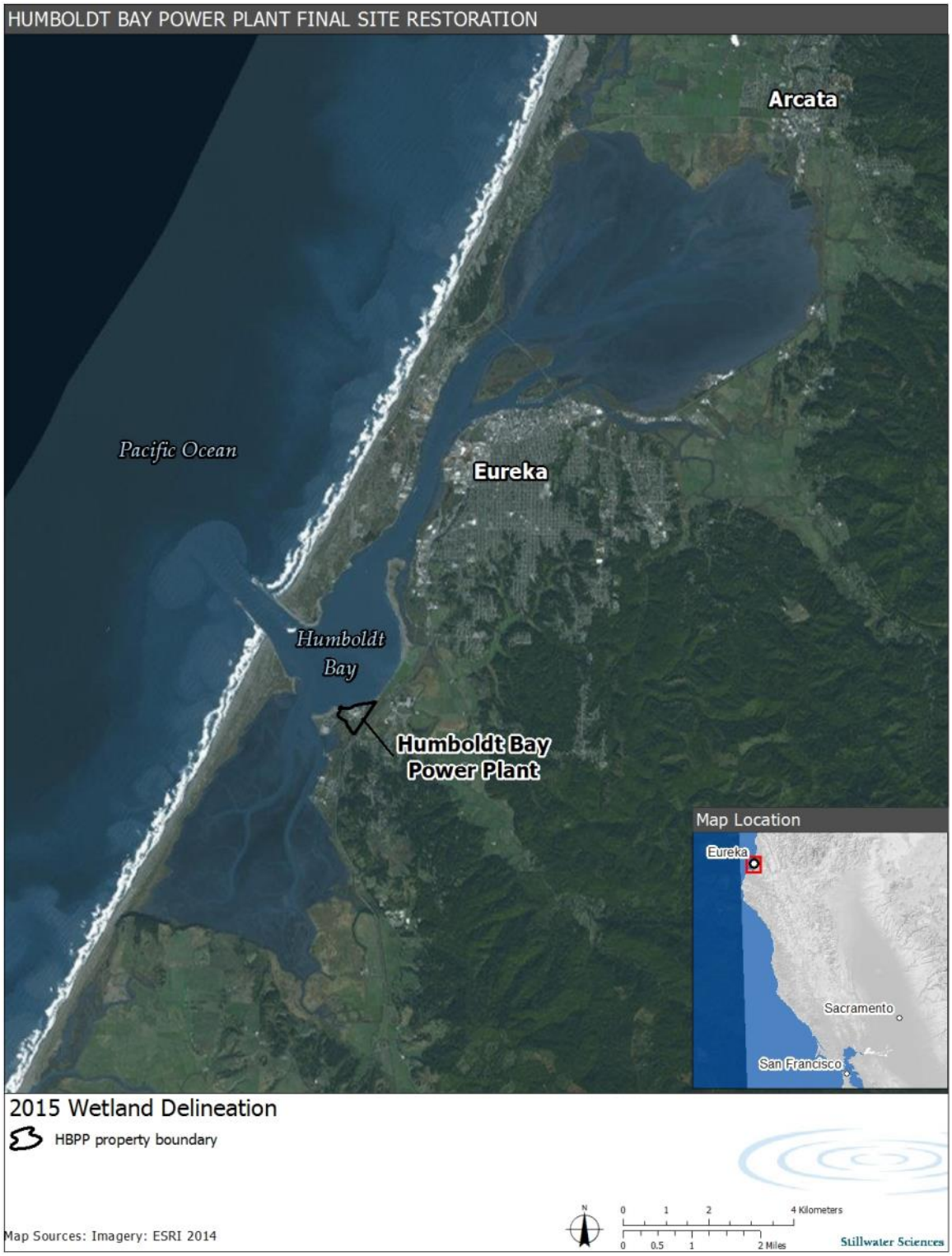

Figure 1. Project location.

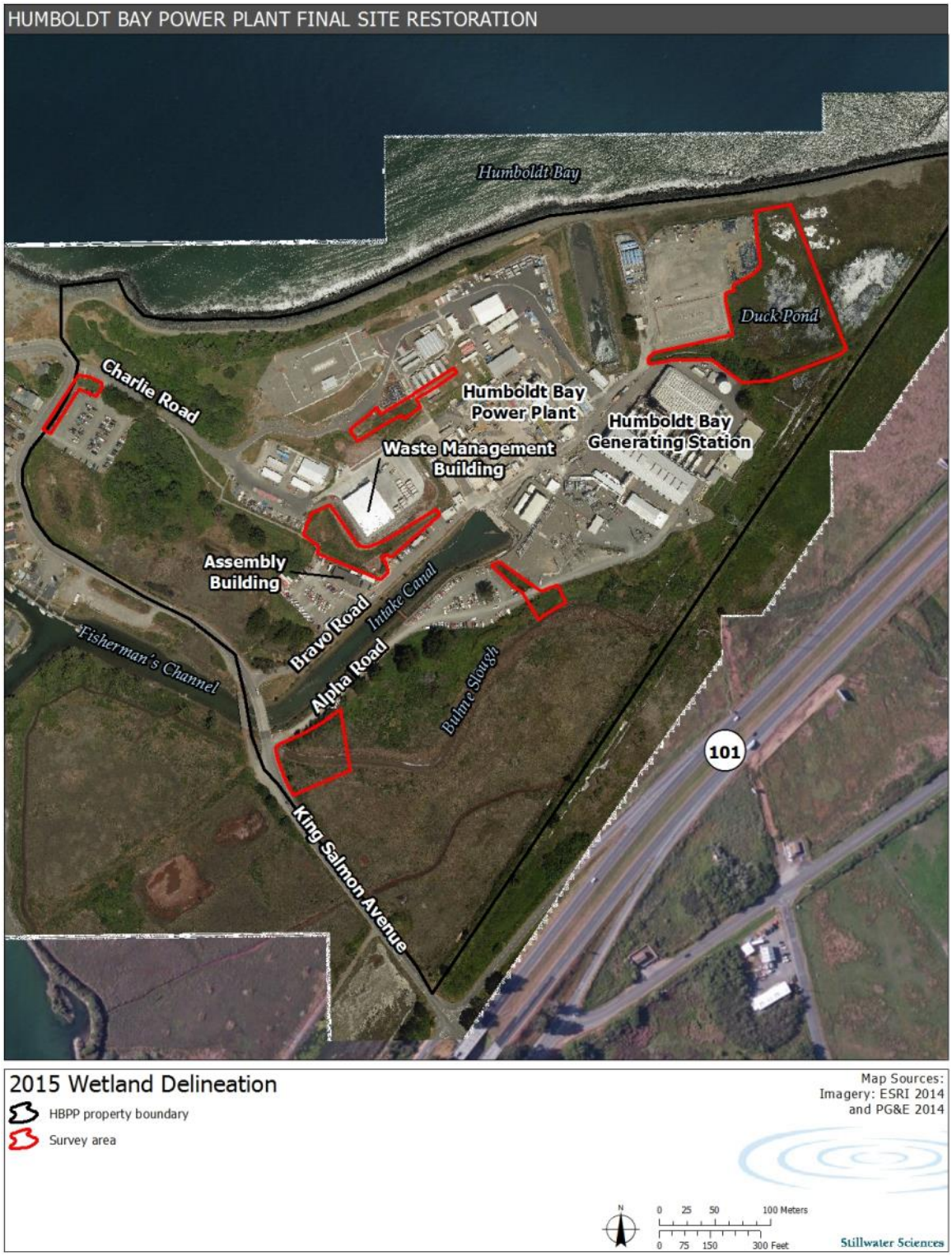

Figure 2. Water and wetland delineation survey areas.

2 METHODS

2.1 Existing Conditions

Prior to the delineation efforts the existing vegetation, soils, hydrology, and precipitation information for the site were evaluated. Former wetland delineation reports (CH2M Hill 2006, Mad River Biologists *et al*. 2009, Mad River Biologists 2010) and the 2014 HBPP storm water drainage map (Nichols 2013) were reviewed. Information on jurisdictional waters and wetlands was obtained from the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) online application, *Wetlands Mapper* (USFWS 2015). No digital data were available from the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey website; therefore, the most recent soil survey publication of the survey area, *Soils of western Humboldt County* (McLaughlin and Harradine 1965), was reviewed. Precipitation and climate records from the National Climatic Data Center (NCDC 2015) were reviewed for a nearby weather station, Eureka Weather Forecast Office, Woodley Island, California.

2.2 Field Delineation

A delineation of potential jurisdictional waters and wetlands within the survey area was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (WMVC Supplement; USACE 2010). The delineation was conducted on February 3, 5, 9, and 10, 2014 by qualified personnel.

Definitions of USACE jurisdictional waters of the U.S. (40 CFR 230.3(s)) that are pertinent to the survey area include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- Other waters–such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, wet meadows, or natural ponds–where the use, degradation, or destruction of which could affect interstate or foreign commerce, including any such waters which are or could be used by interstate or foreign travelers for recreational or other purposes;
- Tributaries to waters identified above; and
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

2.2.1 Waters determination

The extent of waters, other waters, and tributaries was delineated by the location of the ordinary high water mark (OHWM). The OHWM is defined as the elevation established on the shore by water fluctuations, and it is indicated by physical characteristics such as: (a) a clear, natural line impressed on the bank; (b) shelving; (c) changes in the character of soil; (d) destruction of terrestrial vegetation; (e) the presence of litter and debris; or (f) other appropriate means that consider the characteristics of the surrounding areas. The OHWM was identified according to USACE *Regulatory Guidance Letter (RGL) No. 05-05* (USACE 2005). The OHWM of potentially jurisdictional waters was delineated in the field. Boundaries were mapped via a sub-

meter Global Positioning System (GPS) unit (Trimble Geo 6000) and later post-processed, corrected, and incorporated into Geographic Information Systems (GIS) where maps detailing the delineation results were generated. The delineation team recorded the width of the channel at the OHWM at representative cross-sections, and the OHWM water depth at the thalweg (i.e., the projected depth of water when the channel is filled to the OHWM). Other waters and tributaries were categorized as perennial (i.e., support water year-round) or seasonal based on observations in the field and/or in aerial photographs.

2.2.2 Wetland determination

Wetlands were delineated in accordance to the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valley, and Coast* (WMVC) *Supplement* (USACE 2010). The 1987 Manual and WMVC Supplement provided technical guidelines and methods for the three-parameter approach to determining the location and boundaries of USACE jurisdictional wetlands. This approach requires that an area must support positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a jurisdictional wetland. Connectivity of delineated wetlands to other waters and tributaries was evaluated in accordance with USACE RGL 07-01 (USACE 2007). Waters of the State can include all the waters and wetlands under the jurisdiction of the USACE. Wetlands under the jurisdiction of the CCC can include areas with only one or two of the three wetland parameters (vegetation, soils, and hydrology) that are located within the Coastal Zone.

A total of 11 data points were sampled in potential wetland areas in the survey area. If a data point met all three wetland parameters, it was labeled as a USACE wetland; if a point only met one or two wetland parameters, it was labeled as a CCC wetland; if a point met no wetland parameters, it was labeled upland. Potential wetland areas were identified based on information generated from the pre-field review (e.g., the NWI *Wetland Mapper* results), wetlands delineations conducted previously in the area, and observations of hydrology and vegetation in the field. If a data point met all three parameters for a wetland, then a paired data point was placed along the preliminary transition zone (the area in which a change from wetland to non-wetland conditions occurs) to determine the wetland/upland boundary. If the data point did not meet any of the three parameters, then the point was considered an upland location and a paired point was not collected. At each data point, a soil core was taken and the following information was recorded using the USACE (2010) data forms:

1. **Vegetation**: Dominant plant species for each stratum (i.e., tree, sapling/shrub, herb, woody vine) by scientific name (genus and species) following the taxonomy of *The Jepson Manual, Second Edition* (Baldwin *et al*. 2012). Absolute percent cover and dominance were determined using the 50/20 rule outlined in the *WMVC Supplement*, and the wetland indicator status (OBL [obligate], FACW [facultative-wet], FAC [facultative], FACU [facultative-upland], and UPL [upland]) defined for the WMVC Region in the *National Wetland Plant List: 2014 Update of Wetland Ratings* (Lichvar *et al*. 2014). Plant species not listed in the *2014 National Wetland Plant List* were considered upland (UPL) species. A dominance test was performed to determine if the data point exhibited hydrophytic vegetation. If the dominance test was not conclusive, then the prevalence index was calculated.
2. **Hydrology**: Presence and depth of surface water, groundwater, and/or soil saturation were recorded. In addition, if primary (e.g., oxidized rhizospheres along living roots) and secondary indicators (e.g., drainage patterns, dry-season water table, saturation visible on aerial imagery) were observed, then they were also recorded at each data point.

3. **Soils**: Moistened soil matrix descriptions were recorded for each data point using the following: depth of the sample, color (as defined in Munsell soil color charts [Munsell Color 2000]), and texture. If present, redox features were then described by type (e.g., concentration, depletion, reduced matrix) and location (e.g., pore lining, root channel, or matrix). Hydric soils were determined using the *WMVC Supplement* primary indicators, which include redox dark surface (F6) and redox depressions (F8). Per site restrictions within the HBPP Property, soil samples were limited to a depth of six inches from the soil surface. This restriction was not considered problematic since the above listed primary indicators could be applied to this soil profile depth.

The location of each data point was recorded and photographs were taken of the representative site characteristics. Coordinates were determined using a Trimble Geo 6000 GPS unit. The wetland boundaries were walked and locations along the perimeter were recorded using the GPS unit. These boundaries along with other GPS collected data were post-processed, corrected, and incorporated into GIS where maps detailing the delineation results were generated. Mapped wetlands were classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*. 1979) based on the vegetation composition and structure at the data points.

3 RESULTS

3.1 Existing Conditions

3.1.1 Hydrology

To the north and west of the HBPP property is Humboldt Bay. Humboldt Bay includes the Port of Humboldt Bay, a protected deep water port with harbor facilities designed to serve cargo and other vessels, and a number of marinas that serve hundreds of small to mid-size boats and pleasure crafts (Humboldt Bay Harbor, Recreation, & Conservation District 2014). Commercial oyster production operations that produce more than half of all oysters farmed in California are located in Humboldt Bay (Pomeroy *et al.* 2010). Tributaries to Humboldt Bay, Buhne Slough, and Fisherman's Channel/Intake Canal are located within and adjacent to the HBPP property (Figure 2). Humboldt Bay and these tributaries have a substantial influence on groundwater hydrology to adjacent wetlands within the survey area.

The Intake Canal is connected to Humboldt Bay via Fisherman's Canal. The Intake Canal was constructed in 1955 to convey once-through cooling water to the HBPP. With the construction of HBGS in 2010, the Intake Canal was no longer needed for power generation and became a closed, tidally-influenced inlet.

Buhne Slough originally had a direct connection to Humboldt Bay, but a tide gate was installed between Buhne Slough and Fisherman's Channel following construction of the PG&E Intake Canal circa 1955 (Tuttle 2007).

The area between the Assembly Building, Waste Management Building, and Bravo Road is a topographic low point on the property where stormwater runoff from adjacent areas collects (Figure 2). Collected stormwater is currently released with minimal retention from the low point into the Intake Canal through a 12-inch metal pipe that is controlled by a gate valve on the up-gradient side and a "duck bill" valve on the down-gradient side. An elevated vault containing a sewer lift station is located in this depression.

Field personnel identified the following types of jurisdictional wetlands and corroborate the data provided in *Wetlands Mapper*: (Figure 3):

- Fisherman's Channel/Intake Canal: sub-tidal estuarine sandy unconsolidated bottom wetlands and irregularly exposed estuarine intertidal rooted vascular aquatic bed wetlands,
- Buhne Slough: seasonally flooded intermittent riverine streambed,
- Buhne Slough surrounding area: seasonally flooded palustrine persistent emergent wetland, and
- Duck Pond: semi-permanently flooded and dike/impounded palustrine emergent persistent wetland.

3.1.2 Soil units

Soil in the HBPP property is mapped as residential, business/industrial, while the surrounding area is mapped as Bayside series (McLaughlin and Harradine 1965; Figure 4). The mapped residential, business/industrial sections of the Humboldt Bay coast have no official soil survey description. The Bayside series consists of a very deep, poorly-drained soil that is characterized by the NRCS Soil Survey Division (NRCS 2005) as follows:

> *The Bayside series consists of very deep, poorly drained soils that formed in alluvium derived from mixed sources. Bayside soils are in depressional areas of flood plains with slopes 0 to 3 percent. Elevations are 0 to 50 feet. The climate is humid, characterized by warm wet winters and warm moist summers with fog. A strong marine influence limits the diurnal and annual range of temperature. Characteristically, Bayside soils consist of a silty clay loam that is a very dark grayish brown with hard, firm sticky and plastic-textured A horizons that are moderately acidic overlying similar colored C horizons, which are strongly acidic with common iron accumulation masses. The Bayside series is distributed in flood plains of southwestern Oregon and northwestern California coast and mainly used for improved pasture. Native vegetation is Douglas fir, Sitka spruce, redwood, red alder, willow, sedges, rushes, bulrushes and bentgrass.*

Bayside series is listed as a hydric soil on the *NRCS National Hydric Soils List* (NRCS 2014).

Data points collected in areas mapped as Bayside silty clay loam, very poorly drained, confirmed this soil unit with matrix colors ranging from 10YR4/1 and 10YR 4/2 (Appendix A). Data points from areas mapped as residential, business/industrial closely resembled the Bayside soil series with matrix colors of 10YR3/1, 10YR3/2, 10YR4/1, and 10YR4/2. Data points commonly contained both silty clay loam and clay loam soil, which is consistent with soil found in the Bayside series. Soil samples were considered hydric when positive primary indicators were identified, such as redox depressions or redox dark surface (data points 1A, 2A, 3A, 3B, 4A, Appendix A).

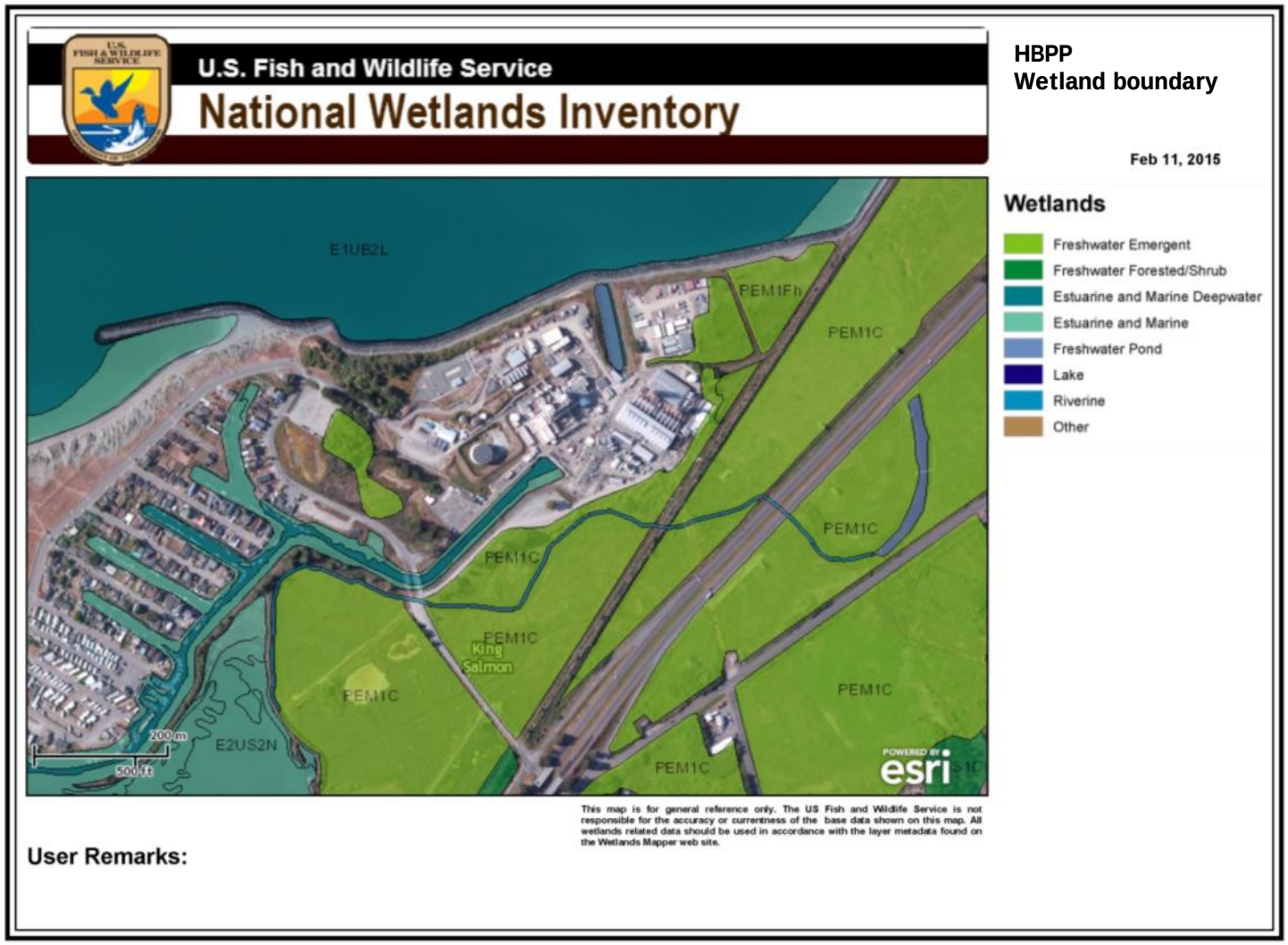

Figure 3. National Wetlands Inventory Map of the survey area (Source: USFWS 2015).

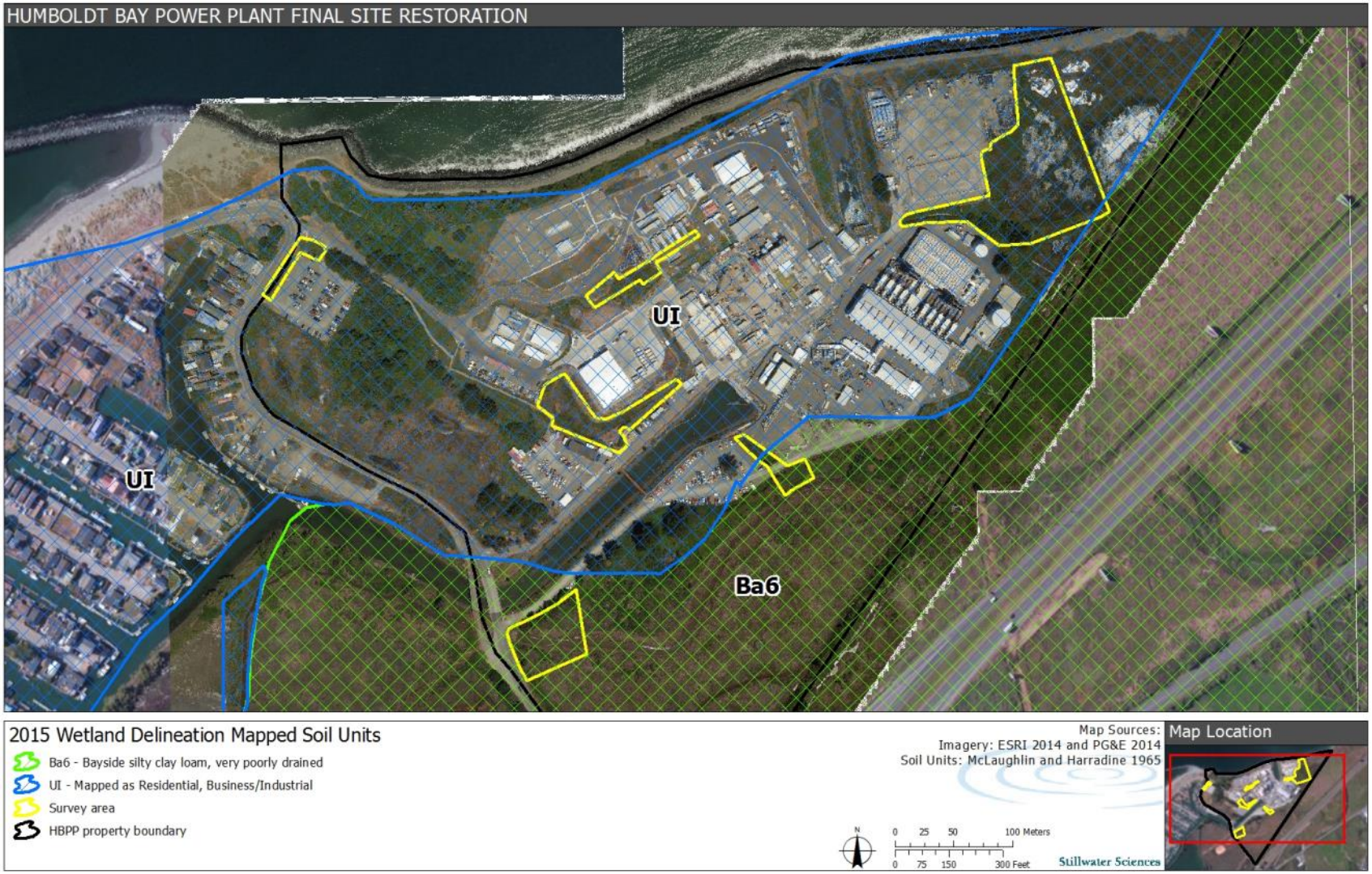

Figure 4. Mapped soil units in the survey area.

3.1.3 Precipitation

The Eureka, California National Oceanic and Atmospheric Administration (NOAA) weather station recorded 5.4 inches of precipitation (rain) from 1 January 2015 through 8 February 2015. Most of the precipitation, 4.1 inches from 2–8 February 2015, was a result of a storm event that coincided with the wetland delineation. According to the weather station, the average precipitation in January (based on the 1981–2010 period of record) is 6.5 inches and in February is 5.6 inches (NCDC 2015). Consequently, precipitation conditions were considered normal during the field survey. Weather conditions during the delineation were overcast to raining and cool (58–67°F) and warmer than the weather station's average monthly climate normal of 48.9°F (NCDC 2015).

3.2 Preliminary Jurisdictional Waters and Wetlands

The survey area contains 2.27 acres of waters of the U.S. that are under the jurisdiction of the USACE (2.25 of which are also considered waters of the State), 2.39 acres of wetlands that are under the jurisdiction of both the USACE and CCC (USACE jurisdictional wetlands also fall under the jurisdiction of the CCC), and an additional 0.14 acre of wetlands that are solely under the jurisdictional of the CCC. These waters and wetlands are summarized in Table 1, described below, and mapped in Figures 6–11.

Table 1. Waters and wetlands identified in the survey area.

Description	Acreage
Waters of the U.S.	
Waters[1]	
Buhne Slough	0.20
Intake Canal	1.96
Intermittently flowing drainage ditches	0.11
Wetlands Adjacent to Waters[2]	
Semi-permanently flooded palustrine persistent emergent wetlands	1.84
Seasonally flooded palustrine persistent emergent wetlands	0.55
Additional CCC Jurisdictional Wetlands	
One-parameter wetlands	0.14

[1] Buhne Slough, Intake Canal and 0.095 acre of the intermittently flowing drainage ditches are also considered waters of the State

[2] Also considered CCC Jurisdictional Wetlands

Figure 5. Preliminary waters of the U.S. identified in the survey area.

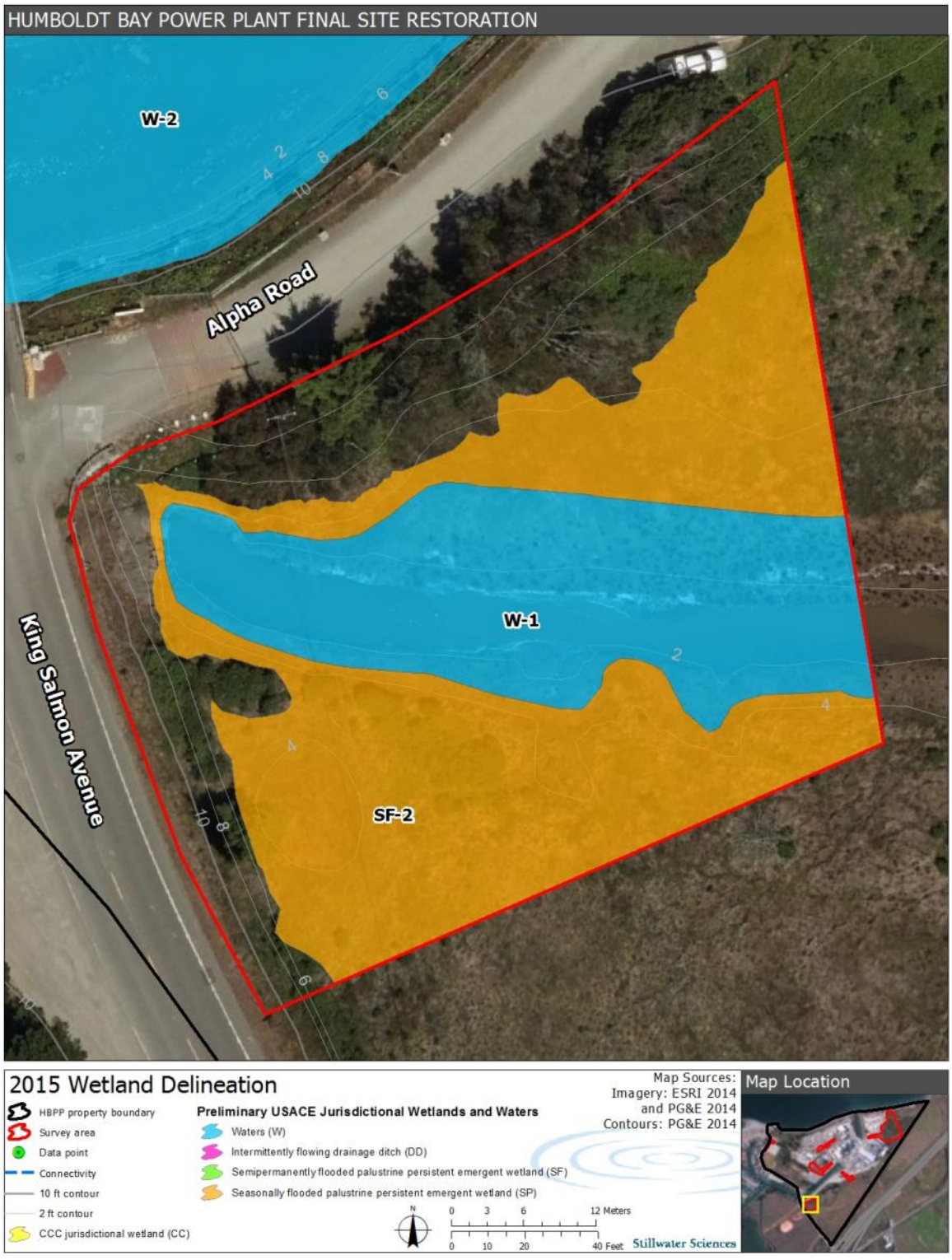

Figure 6. Preliminary waters of the U.S. identified in the Buhne Slough survey area.

Figure 7. Preliminary waters of the U.S. identified in the Bay View survey area.

Figure 8. Preliminary waters of the U.S. identified in the Alpha Road Parking survey area.

Figure 9. Preliminary waters of the U.S. identified in the Duck Pond survey area.

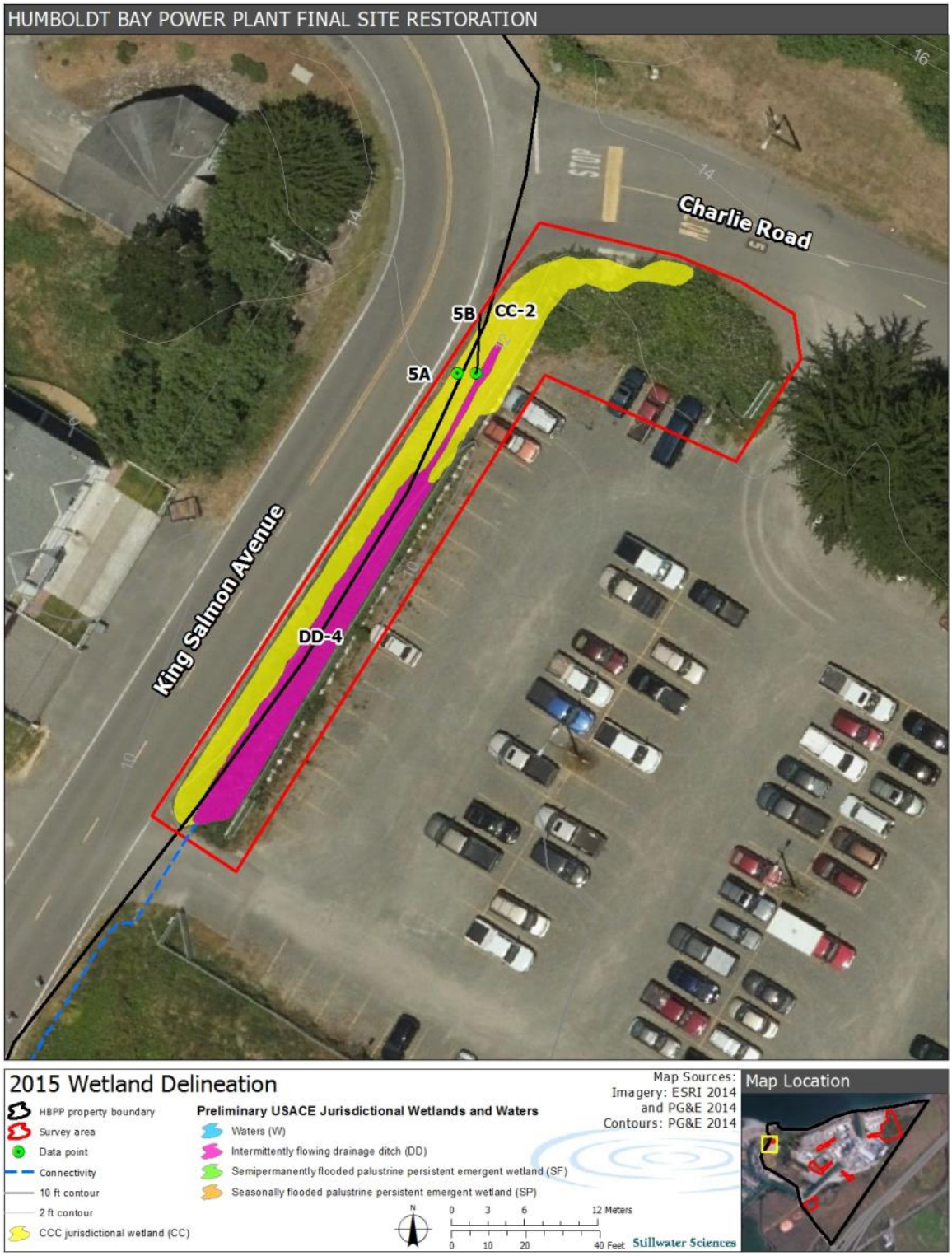

Figure 10. Preliminary waters of the U.S. identified in the Charlie Road Parking survey area.

Figure 11. Preliminary waters of the U.S. identified in the stormwater basin survey area.

3.2.1 Waters of the U.S.

Waters of the U.S. in the survey area include the Intake Canal, Buhne Slough, and intermittently flowing drainage ditches that exhibit an OHWM and drain directly or eventually into a traditional navigable water such as Humboldt Bay (W-1, W-2, DD-1–DD-4, Figures 5–11). These areas are also considered waters of the State with the exception of DD-1. Drainage ditches within the HBPP Property were previously mapped and verified by the USACE as "other waters subject to Section 404 of CWA" and therefore are included in this delineation. Twenty transects were surveyed to measure and characterize these waters (Appendix C). Based on these transects, there are 2.27 acres of waters of the U.S. identified and delineated in the survey area (Table 1). The OHWM indicators at these locations include: bed and bank features, wracking, stream bank shelving, and change in vegetation (Appendices C and D). Waters of the U.S. in the survey area ranged in width (based on the horizontal distance between the right and left bank OHWMs) from 1 to 138 feet and ranged in depth (based on the vertical distance between the OHWM and channel thalweg) from 2 inches to greater than 25 feet (Appendices C and D).

3.2.2 Wetlands

There are a total of 2.39 acres of USACE- and CCC-jurisdictional wetlands and an additional 0.14 ac of CCC-jurisdictional wetlands that were identified and delineated in the survey area (Table 1). Two wetland types occur in the survey area: (1) semi-permanently flooded palustrine persistent emergent wetlands; and (2) seasonally flooded palustrine persistent emergent wetlands, hereinafter called semi-permanently flooded wetlands and seasonally flooded wetlands, respectively (Figures 5–9 and 11). Persistent emergent wetlands are dominated by plant species that normally occur in standing water at least until the beginning of the next growing season (Cowardin *et al.* 1979). Semi-permanently flooded is a water regime where the surface water persists throughout the growing season in most years or when surface water is absent, the water table is usually at or very near the land surface (Cowardin *et al.* 1979). Seasonally flooded wetlands have surface water for extended periods, especially early in the growing season, but water is absent by the end of the season in most years or when surface water is absent, the water table is often near the land surface (Cowardin *et al*. 1979).

3.2.2.1 Semi-permanently flooded wetlands

There are two semi-permanently flooded wetlands in the survey area: (1) a brackish to freshwater marsh located on the eastern portion of the property that is referred to as the "Duck Pond" (SP-2, Figures 5 and 9) and (2) the stormwater detention basin connected via tide gate to the Intake Canal (SP-1, Figures 5 and 11). *Bolboschoenus maritimus* subsp. *paludosus* (saltmarsh bulrush, OBL) and *Typha latifolia* (broad-leaved cattail, OBL) are predominant throughout these wetlands. Both wetlands were located in topographic depressions surrounded by higher elevation levees and experience long durations of inundation.

Duck Pond (SP-2)

At the Duck Pond wetland (SP-2), saltmarsh bulrush is the dominant plant with low to moderate cover provided by broad-leaved cattail, *Holcus lanatus* (velvet grass, FAC), *Potentilla anserina* ssp. *pacifica* (Pacific silverweed, OBL), *Oenanthe sarmentosa* (Pacific oenanthe, OBL), and *Agrostis stolonifera* (creeping bentgrass, FAC).

Saltmarsh plant species, including *Salicornia pacifica* (Pacific pickleweed, OBL), *Distichlis spicata* (salt grass, FACW), and *Atriplex prostrata* (fat-hen, FAC) occur in patches throughout Duck Pond, indicating the presence of saline/brackish water intrusion or subsurface flow from the adjacent Humboldt Bay (Figure 9). Hydrophytic vegetation along the banks includes *Juncus lescurii* (San Francisco rush, FACW), *Salix hookeriana* (coastal willow, FACW), *Angelica lucida* (sea-watch, FAC), and *Symphyotrichum chilense* (common Pacific aster, FAC). Dominant upland vegetation along the levees includes *Rubus armeniacus* (Himalayan blackberry, FACU) and *Baccharis pilularis* (coyote brush, UPL), and various non-native grasses and forbs (Appendix E provides a list of all of the plant species recorded during the delineation and their wetland indicator status). Data point 4B best defines this wetland. Located along the wetland boundary, vegetative cover includes both wetland and upland plant species. Only one species, San Francisco rush, is calculated as being dominant under the dominance test indicator's "50/20 rule"; therefore, hydrophytic vegetation is considered present. The soil consists of silty clay loam with some gravel and contained redox features of prominent redox concentrations occurring as soft masses (5%) and depletions of the matrix (15%) within the upper six inches of the soil profile. Hydric soils were confirmed at this location by the primary hydric soil indicator redox dark surface (F6). Wetland hydrology was confirmed since saturation was evident in the soil pit (Appendix A). The paired upland data point 4A lacked all three wetland indicators (hydrophytic vegetation, hydrology, and hydric soils; Appendix A). Upland vegetation was composed of *Geranium dissectum* (cutleaf geranium, UPL), *Plantago lanceolata* (English plantain, FACU), *Taraxacum officinale* (common dandelion, FACU), *Trifolium repens* (white clover, FAC), *Helminthotheca echioides* (bristly ox-tongue, UPL), and *Erica lusitanica* (Spanish heather, UPL).


Stormwater Detention Basin (SP-1)

The other semi-permanently flooded wetland in the survey area is the stormwater detention basin adjacent to the Intake Canal (described in Section 3.1.1) and an associated channel to the northwest that is connected to the basin by a buried culvert (SP-1, Figure 11). Although this is a manmade basin, this feature is included in this delineation since it was previously characterized as a jurisdictional wetland (Mad River Biologists 2010). Hydrophytic vegetation in the basin includes broad-leaved cattails, *Juncus effusus* (soft lamp rush, FACW), and *Deschampsia cespitosa* (tufted hair grass, FACW). Upland vegetation surrounding the wetland basin includes Spanish heather, *Cortaderia* spp. (pampas grass, UPL), and *Rubus ursinus* (California blackberry, FACU). Data point 3A was positioned along the edge of the basin's associated channel. Hydrophytic vegetation was confirmed by the dominance test, as soft lamp rush and tufted hair grass are the dominant plant species. Hydric soil was confirmed by redox dark surface since 5% prominent redox concentrations occurred as pore linings in a layer greater than four inches thick within the upper 12 inches of the soil (0–5") with a matrix value of 3/1. Wetland hydrology was indicated by surface water and a high water table (Appendix A). This wetland shared a paired upland data point (3C) with the adjacent seasonally flooded wetland (described below), since these two wetlands border the same upland complex. The upland data point 3C was positioned along a gently sloped, mowed area, primarily composed of non-native grasses and forbs (Appendix A, Figure 11). Vegetation at the data point includes dominant plants velvet grass and cut-leaf geranium, along with low cover (<15%) by *Vicia tetrasperma* (sparrow vetch, UPL) and California blackberry. The dominance test was not

conclusive because the dominant hydrophytic vegetation was not greater than 50% and hydric soils were not present. Although the prevalence index was not required it was calculated to confirm whether the upland is a CCC-jurisdictional wetland. The prevalence index did not pass for hydrophytic vegetation and the location was not considered a CCC-jurisdictional wetland. The soil sample did not contain redox features and none of the hydric soil primary indicators applied. Although wetland hydrology was observed by saturation in the upper six inches of the soil pit, the lack of redox features, hydrophytic vegetation, and landscape position-bordering the toe slope, the saturation was likely a result of the coinciding precipitation rather than an enduring feature.

3.2.2.2 Seasonally flooded palustrine persistent emergent wetland

There are four seasonally flooded wetlands in the survey area (SF-1–SF-4, Figures 5–8 and 11), one of which is isolated in a closed depression with no apparent connectivity to waters of the U.S. (SF-3). Additionally, at one previously verified wetland, no change to the wetland parameters were identified (i.e., surface water and hydrophytic vegetation were evident) and the former wetland boundary was confirmed without further inspection (SF-2, Figures 5–6, Mad River Biologists 2010).


Isolated seasonally flooded wetland (SF-3)

The isolated seasonally flooded wetland is located in a small depression along a toe slope of a terraced hillside (SF-3, Figure 7). *Carex obnupta* (slough sedge, OBL) is established along with the weedy invasive plant *Vinca major* (big leaf periwinkle, UPL). Data point 1A best characterizes this area. Dominant hydrophytic vegetation consists of slough sedge and velvet grass. Less prevalent naturalized forbs include English plantain, cutleaf geranium, *Daucus carota* (Queen Anne's lace, FACU), *Rumex acetosella* (sheep sorrel, FACU), and *Vicia* sp. (vetch). Hydric soils are indicated by redox dark surface when a layer greater than four inches with a matrix of 10YR3\1 has greater than two percent redox concentrations occurring as pore linings within the upper six inches of the soil profile. Wetland hydrology was confirmed by the primary indicator, oxidized rhizospheres along living roots (Appendix A). Upland habitat is best defined by the paired data point 1B. While hydric soil and wetland hydrology were confirmed at this location, hydrophytic vegetation is lacking. The dominance test for hydrophytic vegetation was not conclusive and the prevalence index was calculated, since both hydric soil and wetland hydrology were present. The plant species composition, mainly naturalized forbs, fails to meet the prevalence index criteria for hydrophytic vegetation (Appendix A). Hydric soils and wetland hydrology are similar to the paired data point 1A, with redox dark surface and oxidized rhizospheres along living roots observed in the soil profile. The upland location is considered to be a CCC-jurisdictional wetland, since more than one wetland parameter is evident (Appendix A; CC-1, Figure 7).


Seasonally flooded wetland adjacent to the stormwater detention basin (SF-1)

Another seasonally flooded wetland occurs along the northern border of the stormwater detention basin (SF-1, Figure 11). Data point 3B best characterizes this wetland (Appendix A). Hydrophytic vegetation includes velvet grass, common Pacific aster, *Cardamine oligosperma* (few-seeded bittercress, FAC), soft rush, and tufted hair grass. The soil sample was located in a depression subject to ponding, with five percent or more redox concentrations occurring as pore linings in a layer greater than two inches within the upper six inches of the soil profile and therefore confirmed the primary indicator redox depressions (F8) (Appendices A and B; USACE 2010). Primary indicators of hydrology include a high water table and saturation within the soil pit. The paired upland data point (3C) characterizes the upland area for this wetland, and for the adjacent semi-permanently flooded wetland (described in Section 3.2.2.1; Figure 11).


Seasonally flooded wetland near Alpha Road and Buhne Slough (SF-4)

A third seasonally flooded wetland occurs in the southern portion of the survey area, bound by an intermittently flooded drainage ditch to the west, Buhne Slough to the south and a levee adjacent to Alpha Road to the north (SF-4, Figures 5 and 8). This wetland is characterized by data point 2A. Hydrophytic vegetation was confirmed by calculating the prevalence index since the dominance test was not conclusive. Due to the placement of the data point near the wetland boundary, the vegetation was a mixture of upland and wetland plants. Dominant vegetation includes common Pacific aster and coyote brush (Appendix A). Additional plants include Pacific oenanthe, *Scirpus microcarpus* (small-fruited bulrush, OBL), velvet grass, California blackberry, and *Hedera helix* (English ivy, FACU). Hydric soils were confirmed by redox depressions (F8) (see description above). Wetland hydrology was confirmed by 1.5 inches of surface water and a soil pit with both a high water table and saturation present (Appendix A). The upland paired point (2B) was located along a levee hill slope and lacks hydrophytic vegetation and hydric soils. Although hydrology was indicated by saturation, this observation was likely a result of the storm event that coincided with the field delineation and not an enduring feature. This was concluded due to a lack of redoximorphic features in the soil profile and absence of hydrophytic vegetation at the data point. Vegetation consists of only California blackberry and coyote brush (both UPL).

An additional CCC-jurisdictional wetland occurs along the drainage ditch adjacent to King Salmon Road (CC-2 in Figure 10; Appendix A). At both data points 5A and 5B, hydrophytic vegetation is present, but hydric soils and wetland hydrology are lacking. Vegetation at these locations includes mainly velvet grass, but also few-seeded bittercress, *Fragaria chiloensis* (beach strawberry, FACU), Queen Anne's lace, *Poa annua* (annual blue grass, FAC), *Rumex*

crispus (curly dock, FAC), white clover, *Senecio vulgaris* (common groundsel, FAC), and cutleaf geranium (Appendix A).

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Appendices

Appendix A

Wetland Delineation Datasheets

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

Project/Site: HBPP City/County: King Salmon, Humboldt Sampling Date: 3 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 1A

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

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

Subregion (LRR): LRRA Lat: See Trimble GPS wpt 1A Long: Datum:

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: none

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

This sampling plot passes for all three wetland indicators and therefore it is considered within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Carex obnupta	50	Yes	OBL
2. Plantago lancelota	15	No	
3. Rumex acetosella	2	No	
4. Geranium dissectum	1	No	
5. Holcus lanatus	30	Yes	FAC
6. Daucus carrota	2	No	
7. Vicia sp.	3	No	
8.			
9.			
10.			
11.			
	103 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 8

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Within the OHWM of drainage ditch, persistent emergent vegetation is present throughout. Similar to adjacent isolated wetland.

SOIL

Sampling Point: 1A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6 in	10YR 3\1	85	10YR 6\8	7	C	PL	Clay loam	
			10YR 7\8	4	C	PL		
			10YR 5\2	4	D	M		

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox dark surface applies due to matrix color (3\1) with greater than 2% redox concentrations in layer greater than 4 inches within the upper 6 inches of profile.

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 X Depth (inches): ____

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Sampling point in upper border of depression, surface water observed in depression. Max depth of surface water is 7 inches. Hydrology indicated by oxidized rhizospheres along living roots. (Site checked after storm event and surface water was evident at this sampling location).

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

Project/Site: HBPP City/County: King Salmon, Humboldt Sampling Date: 3 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 1B

Investigator(s): Emmalien Craydon, Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Slope Slope (%): 50

Subregion (LRR): LRR A Lat: see Trimble GPS wpt 1B Long: _____ Datum: _____

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Although hydric soil and wetland hydrology are present, hydrophytic vegetation is lacking therfore this plot is not within a USACE wetland. It does pass for a CCC wetland (has 2 wetland parameters)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1m)			
1. Plantago lancelota	50	Y	FACU
2. Holcus lanatus	30	Y	FAC
3. Geranium dissectum	3		UPL
4. Erica lusticania	2		UPL
5. Lotus corniculatus	2		FAC
6. Taraxacum officinale	15		FACU
7. Trifolium repens	2		FAC
8. Helminthotheca echoidies	1		UPL
9. Vicia americana	2		FAC
10.			
11.			
	107 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	36	x 3 =	108
FACU species	65	x 4 =	260
UPL species	7	x 5 =	35
Column Totals:	107 (A)		403 (B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Dominance test not conclusive, prevalence index calculated since hydric soil and hydrology are present but vegetation does not pass for hydrophytic vegetation (i.e., greater than 3) and vegetation is not considered recently disturbed or naturally problematic.

SOIL

Sampling Point: 1B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6 in	10 YR 3\2	85	10 YR 6\8	5	C	PL	Clay loam	
			10 YR 5\2	10	D	M		

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox dark surface confirmed at this sampling location since matrix is 3\2 with 5% redox features in layer greater than 4 in the upper six inches of soil profile

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 X Depth (inches): ____

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

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Wetland hydrology is indicated by oxidized rhizospheres along living roots.

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

Project/Site: HBPP | City/County: King Salmon/ Humboldt | Sampling Date: 5 February 2015

Applicant/Owner: PG&E | State: CA | Sampling Point: 2A

Investigator(s): Emmalien Craydon and Emily Teraoka | Section, Township, Range: Section 8 of Township 4 North, Range 1 West

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

Subregion (LRR): LRRA | Lat: see Trimble GPS wpt 2A | Long: | Datum:

Soil Map Unit Name: Bayside silty clay loam | NWI classification: Freshwater emergent (PEM1C)

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:

All three wetland parameters were present and this sampled area is considered within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 1m2)			
1. Baccharis pilularis	15	Yes	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Symphyotrichum chilense	80	Yes	FAC
2. Oenanthe sarmentosa	15	No	OBL
3. Hedera helix	1	No	FACU
4. Scirpus microcarpus	15	No	OBL
5. Holcus lanatus	5	No	FAC
6. Rubus ursinus	5	No	FACU
7.			
8.			
9.			
10.			
11.			
	121 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species		x 2 =	
FAC species	85	x 3 =	255
FACU species	6	x 4 =	24
UPL species	15	x 5 =	75
Column Totals:	136 (A)		384 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks:

The dominance test was not conclusive so the prevalence index was calculated and passed for hydrophytic vegetation.

SOIL

Sampling Point: 2A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4\1	92	10YR4\8	8	C	PL	Silty clay loam	Saturated soil

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Edge of depression, >5% redox concentrations in a 6 inch layer in the upper 6 inches of the soil profile therefore passes for redox depressions (F8).

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 X No ____ Depth (inches): 0-1.5

Water Table Present? Yes X No ____ Depth (inches): 4.5-6

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 1.5-6

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Survey conducted during large precipitation event. Even so saturation and intermittent ponding likely occur seasonally here, seen by landform position, plants, and redox features in soil.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 5 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 2B

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Sloped Slope (%): 45

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 2B Long: _____ Datum: _____

Soil Map Unit Name: Bayside Silty Clay Loam NWI classification: Freshwater emergent (PEM1C)

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Although wetland hydrology is present it likely is due to high precipitation and the runoff on the hillslope. This area is not considered to be within a CCC wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 2m2)			
1. Baccharis pilularis	20	UPL	
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: 2m2)			
1. Rubus ursinus	80	FACU	
2.			
	80 = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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 = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Vegetation a thicket of California blackberry with some coyote brush, no herbs evident. All vegetation is considered upland plants.

SOIL

Sampling Point: 2B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4\2	98	10YR 5\8	2	C	PL	Silty clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes _____ No X

Remarks:

Not in a depression, redox dark surface doesn't apply to matrix colors of 4/2. No other primary indicator applies.

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? (includes capillary fringe) Yes X No _____ Depth (inches): Top 1 in

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Likely present from precipitation-sloped hillside/ no ponding/surface water/ or water table present.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 6 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 3A

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 3A Long: _____ Datum: _____

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All three wetland parameters are present therefore this location is considered within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 3m2)			
1. Cardamine oligasperma	40	Yes	FAC
2. Symphorytrichum chilense	20	No	
3. Holcus lanatus	60	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	120 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Hydrophytic vegetation is dominant within this plot.

SOIL

Sampling Point: 3A

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4\2	92	10 YR 5\8	8	C	PL	Silty clay loam	with some gravel

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox depression applies to since redox concentrations of at least 5% concentrations in the upper 6 inches in a closed depression.

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 X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 1

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): to surface

Wetland Hydrology Present? Yes X No ____

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

Remarks:

High water table and saturation present in soil pit.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 6 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 3B

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 3B Long: _____ Datum: _____

Soil Map Unit Name: Ul (adjacent to Bayside Silty Clay Loam) NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All three wetland parameters are present therefore this location is considered within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3m2)			
1. Symphyotrichum chilense	15	No	
2. Deschampsia cespitosa	45	Yes	FACW
3. Juncus effusus	40	Yes	FACW
4. Juncus lescurri	10	No	
5. Holcus lanatus	10	No	
6. Silybum marinum	2	No	
7.			
8.			
9.			
10.			
11.			
	132 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Hydrophytic vegetation is dominant within this plot.

SOIL

Sampling Point: 3B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3\1	95	10 YR 5\8	5	C	PL	Silty clay loam	
5-6	10YR 5\1	95	10 YR 5\8	5	C	PL	silty clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☑ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox dark surface applies to matrix color of 3/1 with at least 2% concentrations and in layer thicker than 4 inches in the upper 6 inches.

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 X No ____ Depth (inches): 1

Water Table Present? Yes X No ____ Depth (inches): TO SURFACE OF PIT

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Ponding/surface water and high water table present.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 5 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 3C

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Sloped Slope (%): 40

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 3C Long: _____ Datum: _____

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Although wetland hydrology is present it likely is due to high precipitation and the runoff on the hillslope. This area is not considered to be within a CCC wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Holcus lanatus	80	Yes	FAC
2. Vicia tetrasperma	15	No	UPL
3. Geranium dissectum	40	Yes	UPL
4. Rubus ursinus	3	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	138 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	80	x 3 =	240
FACU species	3	x 4 =	12
UPL species	55	x 5 =	275
Column Totals:	138 (A)		527 (B)

Prevalence Index = B/A = 3.81

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Dominance test not conclusive, prevalence index applied for CCC parameters but did not pass for hydrophytic vegetation.

SOIL

Sampling Point: 3C

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 4\2	100					Silty clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes _____ No X

Remarks:

Not in a depression, redox dark surface doesn't apply to matrix colors of 4/2. No redox features present. No other primary indicator applies.

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? (includes capillary fringe) Yes X No _____ Depth (inches): to surface

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Likely present from precipitation-sloped hillside/ no ponding/surface water/ or water table present.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 9 February 2015

Applicant/Owner: PG&E State: CA Sampling Point: 4A

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

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

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 4A Long: _____ Datum: _____

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: Freshwater emergent (PEM1Fh)

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Location is lacking hydrophytic vegetation therefore this location is not considered within an USACE wetland but does meet CCC wetland parameters.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Symphyotrichum chilense	35	Yes	FAC
2. Helominotheca echoides	10	No	UPL
3. Raphanus sativus	55	Yes	FACU
4. Achillea millefoliata	8	No	FACU
5. Rubus armeniacus	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	113 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	_____	x 2 =	_____
FAC species	35	x 3 =	105
FACU species	13	x 4 =	52
UPL species	65	x 5 =	325
Column Totals:	113 (A)		482 (B)

Prevalence Index = B/A = 4.2

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Dominance test not conclusive, prevalence index fails to meet hydrophytic vegetation value.

SOIL

Sampling Point: 4A

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3\1	100					Silty clay loam	
2-6	10YR 3\1	94	10 YR 5\8	6	C	SM	silty clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox dark surface applies to matrix color of 3/1 with at least 2% concentrations and in layer at least 4 inches thick in the upper 6 inches.

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 X No ____ Depth (inches): 2

Water Table Present? Yes X No ____ Depth (inches): 3-6

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0-3

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Ponding/surface water, high water table , and saturation present.

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

Project/Site: HBPP City/County: King Salmon/Humboldt Sampling Date: 9 FEB 2015

Applicant/Owner: PG&E State: CA Sampling Point: 4B

Investigator(s): Emmalien Craydon and Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

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

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 4B Long: _____ Datum: _____

Soil Map Unit Name: UI (adjacent to Bayside Silty Clay Loam) NWI classification: Freshwater emergent (PEM1Fh)

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

All three wetland parameters are present therefore this location is considered within a wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Angelica lucida	20	No	FAC
2. Juncus lescurii	85	Yes	FACW
3. Raphanus sativus	35	No	UPL
4. Polystichum munitum	5	No	FACU
5. Holcus lanatus	8	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	158 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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 = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Dominance test passes for hydrophytic vegetation

SOIL

Sampling Point: 4B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3\1	80	10 YR 5\1	15	D	M	Silty clay loam	
			10 YR 5\8	5	C	SM	silty clay loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes X No ____

Remarks:

Redox dark surface applies to matrix color of 3/1 with at least 2% concentrations and in layer at least 4 inches thick in the upper 6 inches.

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 X Depth (inches): ____

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

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 3-6

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Saturation is present within the soil pit and passes for wetland hydrology.

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

Project/Site: HBPP City/County: King Salmon, Humboldt Sampling Date: 02\10\2015

Applicant/Owner: PG&E State: CA Sampling Point: 5A

Investigator(s): EPC, EKT Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): Side channel Local relief (concave, convex, none): Slope Slope (%): 20

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 5A Long: _____ Datum: _____

Soil Map Unit Name: UI NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Photos 828-832_ Although this wetland has hydrophytic vegetation, hydric soils and wetland hydrology are lacking therefore this is not considered within an USACE wetland. Parameters for a CCC wetland apply.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Trifolium repens	6	N	
2. Poa annua	12	Y	FAC
3. Geranium dissectum	3	N	
4. Festuca perrenis	45	Y	FAC
5. Rumex crispus	3	N	
6. Fragaria chiloensis	10	N	
7. Vicia sp.	2	N	
8. Daucus carota	6	N	
9. Medicago polymorpha	6	N	
10.			
11.			
	93 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Dominant vegetation is hydrophytic and passes the dominance test.

SOIL

Sampling Point: 5a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	2.5Y3/2	100					Sand	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes _____ No X

Remarks:

No sandy primary indicators apply at this location.

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 X Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No primary indicators apply to this location.

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

Project/Site: HBPP City/County: King Salmon/ Humboldt Sampling Date: 02\10\2015

Applicant/Owner: PG&E State: CA Sampling Point: 5B

Investigator(s): Emmalien Craydon, Emily Teraoka Section, Township, Range: Section 8 of Township 4 North, Range 1 West

Landform (hillslope, terrace, etc.): Depression, adjacent to ditch Local relief (concave, convex, none): Concave Slope (%): 5

Subregion (LRR): LRRA Lat: see Trimble GPS wpt 5B Long: _____ Datum: _____

Soil Map Unit Name: U/I NWI classification: none

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x 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 x No _____	**Is the Sampled Area within a Wetland?** Yes _____ No x
Hydric Soil Present?	Yes _____ No x	
Wetland Hydrology Present?	Yes _____ No x	

Remarks:

Photos 833-836, this sampling plot is not within a USACE wetland (lacking 2 parameters), but due to passing hydrophytic vegetation this location is within a CCC wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 1m2)			
1. Festuca perrenis	70	Yes	FAC
2. Plantago lanceolata	15	No	
3. Cardamine oligosperma	5	No	
4. Trifolium repens	12	No	
5. Senecio vulgaris	2	No	
6.			
7.			
8.			
9.			
10.			
11.			
	104 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	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 = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes x No _____

Remarks:

Hydrophytic vegetation is considered present by the dominant plant, velvet grass.

SOIL

Sampling Point: 5B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	2.5Y3/1	100					Sandy loam	
2-6	Gley14/10Y	100					Fill, gravel	not likely gleyed, color matches but gravel/fill here likely artificial

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: per site restrictions

Depth (inches): 6

Hydric Soil Present? Yes _____ No X

Remarks:

Encountered artificial fill starting at 2 inches from surface. Although the fill color matches a gleyed color, the soil sample is not considered sandy or loamy gleyed matrix and therefore this was not considered for this sampling location.

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 X Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No primary indicators present at location.

Appendix B

Photographs of Wetland Delineation Data Points

Figure B-1. Wetland data point 2A (SF-4).

Figure B-2. Upland data point 2B.

Figure B-3. Wetland data point 1A (SF-3).

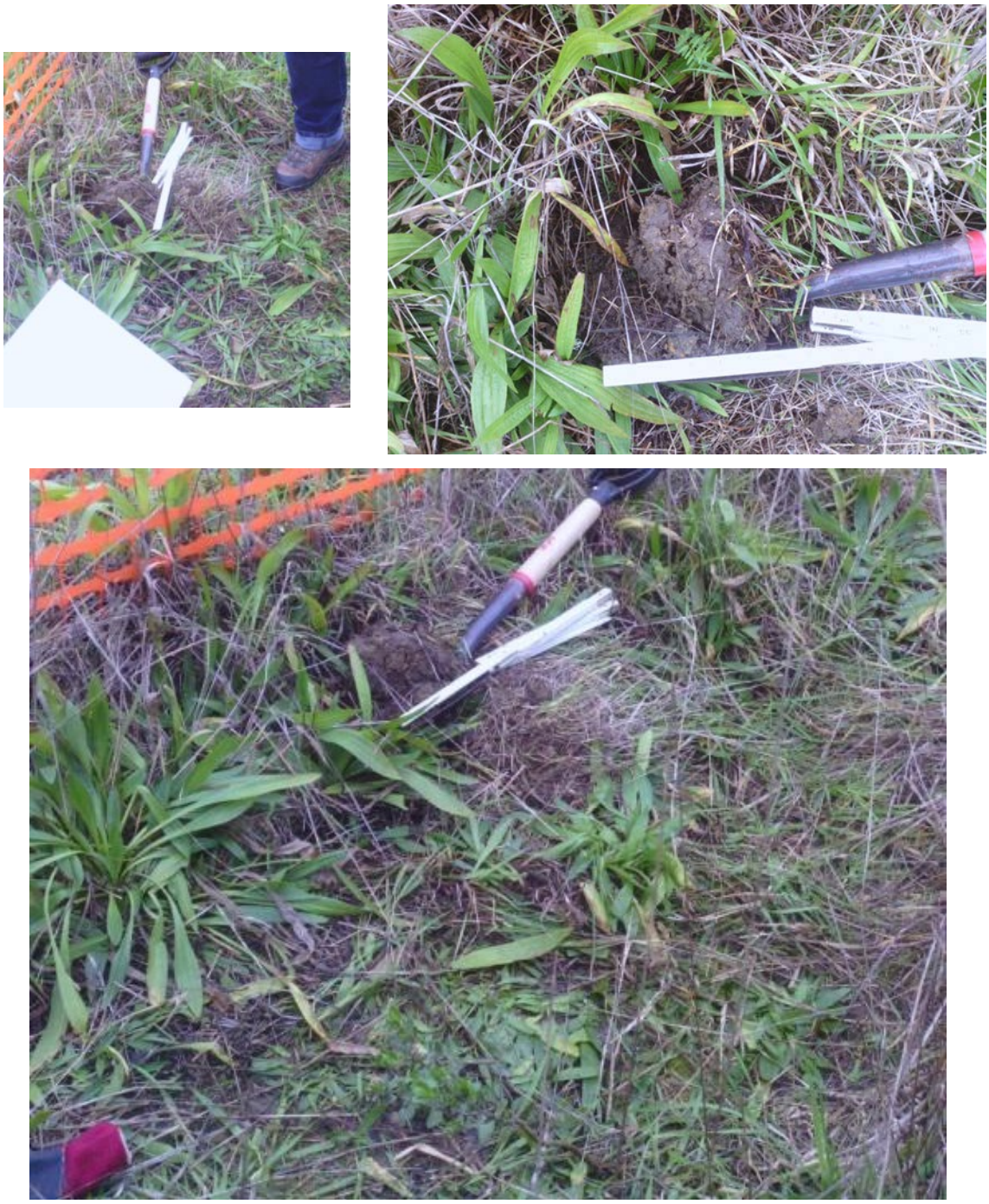

Figure B-4. Upland data point 1B (CC-1).

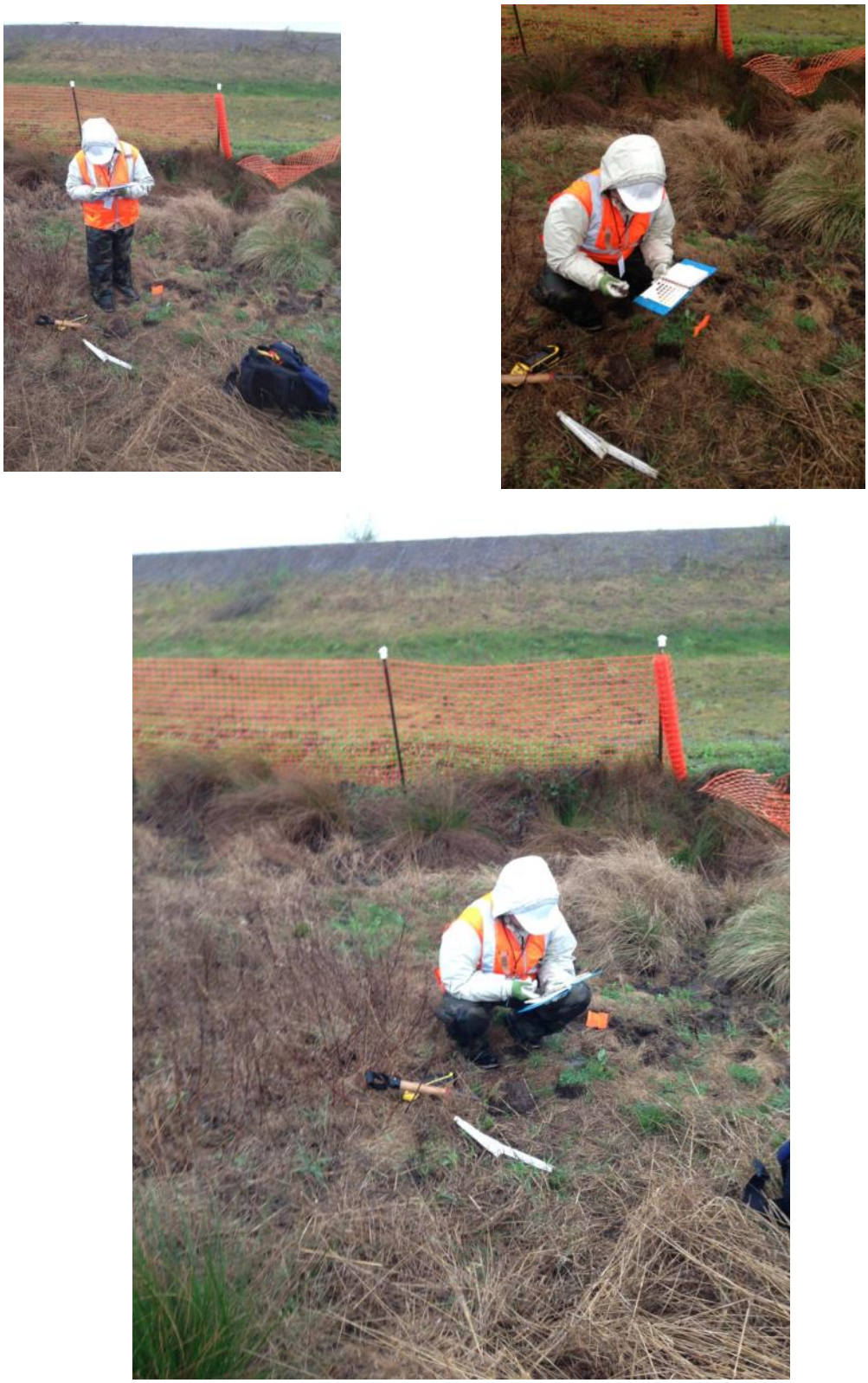

Figure B-5. Wetland data point 3A (SP-1).

Figure B-6. Wetland data point 3B (SF-1).

Figure B-7. Upland data point 3C.

Figure B-8. Wetland data point 4B (SP-2).

Figure B-9. Upland data point 4A.

Figure B-10. Upland data point 5A (CC-2).

Figure B-11. Upland data point 5B (CC-2).

Appendix C

Waters of the U.S. Datasheet

Table C-1. Waters of the U.S. datasheet for the wetland delineation conducted by Stillwater Sciences at the PG&E HBPP Property on February 5–10, 2015.

Transect No.	Location Description	Photos	Waypoints	USACE Jurisdictional Waters				Waters of the State			OHWM Indicators (include all present)
				Distance across (existing) surface water	Distance across at OHWM	Water depth (existing) at thalweg	Water depth (of OHW) at thalweg	Distance btwn tops of stream banks	RB riparian veg width	LB riparian veg width	
				units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	
W2A	Drainage ditch from Alpha Road to Buhne Slough	Appendix D	1.0	36.0	60.0	14.0	21.0	216.0	120.0	72.0	clear, natural line impressed on the bank, incised channel, wracking, tidally influenced by Buhne Slough
W2B	Drainage ditch from Alpha Road to Buhne Slough	Appendix D	2.0	19.0	39.0	6.5	11.0	228.0	108.0	120.0	channelized, change in vegetation, wracking
W2C	Drainage ditch from Alpha Road to Buhne Slough	Appendix D	3.0	78.0	80.0	3.0	3.0	same as USACE OHWM			surface water, sparsely vegetated, depressed
W2D	Drainage ditch from Alpha Road to Buhne Slough	Appendix D	4.0	50	110	3	3	240.0	192.0	48.0	change in vegetation, surface water, depressed
W2E	Drainage ditch from switchyard to Alpha Road	Appendix D	24, 28	120	156	144	168	168.0	156.0	12.0	change in vegetation, channel, bench
W2F	Drainage ditch from switchyard to Alpha Road	Appendix D	25, 29	48	84	72	144	same as USACE OHWM			change in vegetation, channel, bench

Transect No.	Location Description	Photos	Waypoints	USACE Jurisdictional Waters				Waters of the State			OHWM Indicators (include all present)
				Distance across (existing) surface water	Distance across at OHWM	Water depth (existing) at thalweg	Water depth (of OHW) at thalweg	Distance btwn tops of stream banks	RB riparian veg width	LB riparian veg width	
				units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	
W1A	Bayview drainage ditch	Appendix D	21	48	72	7	11	same as USACE OHWM			channel, change in veg
W1B	Bayview drainage ditch	Appendix D	at culvert near stairs	36	120	2	2	same as USACE OHWM			channel, change in veg
W4A	Drainage ditch from HBPP to "Duck Pond"	Appendix D	10, 12	264	288	4	7	900	720	180	channel, change in veg, natural line impressed on the bank
W4B	Drainage ditch from HBPP to "Duck Pond"	Appendix D	19 or 20	80	90	13	19	same as USACE OHWM			channel, change in veg, natural line impressed on the bank
na	Drainage ditch from HBPP to "Duck Pond"	Appendix D	26, 27	location of culvert							location of culvert from HBGS area
W6A	Buhne Slough at King Salmon Ave	Appendix D	31, 32	192	480	>48	>72	516	252	264	tidal slough, clear, natural line impressed on the bank, wracking
W6B	Buhne Slough at King Salmon Ave	Appendix D	33, 34	216	924	>48	>72	2700	816	1884	tidal slough, clear, natural line impressed on the bank, wracking
W5A	Drainage ditch Charlie Rd parking lot	Appendix D	9	85	100	2.5	7	same as USACE OHWM			bench, change in plant community
W5B	Drainage ditch Charlie Rd parking lot	Appendix D	10	82	110	5	11	same as USACE OHWM			bench, change in plant community

Transect No.	Location Description	Photos	Waypoints	USACE Jurisdictional Waters				Waters of the State			OHWM Indicators (include all present)
				Distance across (existing) surface water	Distance across at OHWM	Water depth (existing) at thalweg	Water depth (of OHW) at thalweg	Distance btwn tops of stream banks	RB riparian veg width	LB riparian veg width	
				units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	units = inches	
W5C	Drainage ditch Charlie Rd parking lot	Appendix D	11	55	75	1.5	6	same as USACE OHWM			bench, change in plant community
W5D	Drainage ditch Charlie Rd parking lot	Appendix D	12	6	98	1	9	same as USACE OHWM			bench, change in plant community
W5E	Drainage ditch Charlie Rd parking lot	Appendix D	-	0	12	0	4	same as USACE OHWM			intermittent-narrow band, no veg, change in veg
W5F	Drainage ditch Charlie Rd parking lot	Appendix D	-	0	16	0	5	same as USACE OHWM			intermittent-narrow band, no veg, change in veg
W7A	Intake Canal	Appendix D	-	480	948	120	180	1092	540	552	wracking, clear, natural line impressed on the bank
W7B	Intake Canal	Appendix D	-	1512	1656	>240	>300	1716	948	768	wracking, clear, natural line impressed on the bank

Appendix D

Photographs of Waters of the U.S.

Figure D-1. Buhne Slough (W-1).

Figure D-2. Intake Canal (W-2).

Figure D-3. Intermittently flowing drainage ditch (DD-1). Bottom image shows connectivity to adjacent drainage ditch and drainage inlet to stormwater system, see Figure 5.

Figure D-4. Intermittently flowing drainage ditch (DD-2).

Figure D-5. Intermittently flowing drainage ditch (DD-3). Bottom image is a view of drainage ditch outlet to Duck Pond (SP-2).

Figure D-6. Intermittently flowing drainage ditch (DD-4).

Appendix E

Comprehensive Plant List in the Survey Area

Latin name	Common name	Wetland indicator (WMVC Region)
Achillea millefolium	yarrow	FACU
Agrostis stolonifera	creeping bentgrass	FAC
Angelica lucida	sea-watch	FAC
Atriplex prostrata	fat-hen	FAC
Baccharis pilularis	coyote brush	UPL
Bolboschoenus maritimus subsp. *paludosus*	saltmarsh bulrush	OBL
Carex obnupta	slough sedge	OBL
Cardamine oligosperma	few-seeded bittercress	FAC
Cortaderia sp.	pampas grass	UPL
Daucus carota	Queen Anne's lace	FACU
Deschampsia cespitosa	tufted hair-grass	FACW
Distichlis spicata	salt grass	FACW
Erica lusitanica	Spanish heather	UPL
Festuca perennis	rye grass	FAC
Fragaria chiloensis	beach strawberry	FACU
Geranium dissectum	cut-leaved geranium	UPL
Hedera helix	English ivy	FACU
Holcus lanatus	velvetgrass	FAC
Juncus effusus	soft lamp rush	FACW
Juncus lescurii	San Francisco rush	FACW
Lotus corniculatus	bird's-foot trefoil	FAC
Medicago polymorpha	California burclover	FACU
Oenanthe sarmentosa	Pacific oenanthe	OBL
Helminthotheca echioides	bristly ox-tongue	UPL
Plantago lanceolata	English plantain	FACU
Poa annua	annual blue grass	FAC
Polystichum munitum	western sword fern	FACU
Potentilla anserina ssp. *pacifica*	Pacific silverweed	OBL
Raphanus sativus	wild radish	FACU
Rubus armeniacus	Himalayan blackberry	FACU
Rubus ursinus	California blackberry	FACU
Rumex crispus	curly dock	FAC
Rumex acetosella	sheep sorrel	FACU
Salicornia pacifica	Pacific pickleweed	OBL
Salix hookeriana	coastal willow	FACW
Scirpus microcarpus	small-fruited bulrush	OBL
Senecio vulgaris	common groundsel	FAC
Silybum marianum	blessed milkthistle	UPL
Symphyotrichum chilense	common Pacific aster	FAC
Taraxacum officinale	common dandelion	FACU
Trifolium repens	white clover	FAC
Typha latifolia	broad-leaved cattail	OBL
Vicia americana	American vetch	FAC
Vicia sp.	vetch	--
Vicia tetrasperma	Sparrow vetch	UPL

Appendix E
Construction Emissions Calculations

Appendix E - Construction Emission Calculations

Criteria Pollutant Summary

	ROG	CO	NOx	SOx	PM_{10}	$PM_{2.5}$
Daily Emissions (lb/day)	18.6	126	203	0.32	8.04	7.23
Project Emissions (tons/project)	0.68	5.80	7.18	0.012	0.31	0.27

Greenhouse Gas Summary

	CO_2	N_2O	CH_4	CO_2e
Project Emissions (metric tons/project)	1,118	0.30	0.028	1,134

Offroad Equipment Emissions

						Emission Rates (g/hp-hr) [b]								
Offroad Equipment	Number	Horsepower	Load Factor	Hours per Day [a]	Total Hours	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O
Excavator	2	270	0.38	10	1,280	0.17	1.14	2.05	4.9E-03	0.066	0.061	489	0.15	-
Dump Truck	12	370	0.38	10	7,450	0.29	1.56	3.09	4.9E-03	0.11	0.10	494	0.15	-
Front End Loader	3	160	0.37	10	3,540	0.30	3.14	3.17	4.8E-03	0.16	0.15	486	0.15	-
Dozer	2	200	0.43	10	1,800	0.40	1.65	5.29	4.9E-03	0.20	0.18	492	0.15	-
Compactor	3	170	0.38	10	2,370	0.27	2.95	3.18	4.9E-03	0.15	0.14	490	0.15	-
Backhoe	2	90	0.37	10	3,070	0.42	3.69	4.15	4.9E-03	0.29	0.27	494	0.15	-
Asphalt Spreader [c]	1	225	0.30	10	150	0.24	1.23	3.99	4.9E-03	0.11	0.10	494	0.15	-
Hydro Mulcher [c]	1	140	0.42	10	90	0.44	3.26	4.75	4.8E-03	0.25	0.23	488	0.15	-
Flatbed Truck	1	200	0.38	10	830	0.34	1.54	3.45	4.8E-03	0.14	0.13	488	0.15	-

[a] Construction is assumed to take one year, based on the project description, with construction activity occuring 10 hours per day, four days per week.

[b] Emission rates developed from the defaults in Appendix D of the CalEEMod User's Guide (ENVIRON, 2013) for 2018, with the exception of N_2O. N_2O emission factors were taken from Table 13.7 of The Climate Registry's Default Emissions Factors (TCR, 2014) and applied to fuel consumption data from the OFFROAD2011 database for the North Coast Air Basin.

[c] Horsepower ratings for the asphalt spreader and the hydro mulcher were based on a CAT AP1055F and a Bowie Imperial 3000, respectively. Due to the low number of hours anticipated, it is assumed only one of each equipment would operate at the project site in a single day.

Offroad Equipment Emissions (continued)

						Emissions (lb/day)										Emissions (tons/project)						Emissions (metric tons/project)			
Offroad Equipment	Number	Horsepower	Load Factor	Hours per Day [a]	Total Hours	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Excavator	2	270	0.38	10	1,280	0.79	5.15	9.28	0.022	0.30	0.28	2,213	0.69	0.018	2,235	0.025	0.16	0.30	7.1E-04	9.6E-03	8.8E-03	64.2	0.020	1.1E-03	65.0
Dump Truck	12	370	0.38	10	7,450	10.7	58.0	115	0.18	4.20	3.86	18,356	5.71	0.046	18,513	0.33	1.80	3.57	5.7E-03	0.13	0.12	517	0.16	0.016	526
Front End Loader	3	160	0.37	10	3,540	1.16	12.3	12.4	0.019	0.62	0.57	1,902	0.59	0.011	1,920	0.069	0.72	0.73	1.1E-03	0.037	0.034	102	0.032	1.7E-03	103
Dozer	2	200	0.43	10	1,800	1.51	6.27	20.1	0.019	0.76	0.70	1,864	0.58	0.027	1,887	0.068	0.28	0.90	8.4E-04	0.034	0.031	76.1	0.024	2.2E-03	77.4
Compactor	3	170	0.38	10	2,370	1.13	12.6	13.6	0.021	0.63	0.58	2,094	0.65	9.3E-03	2,113	0.045	0.50	0.54	8.3E-04	0.025	0.023	75.0	0.023	1.0E-03	75.9
Backhoe	2	90	0.37	10	3,070	0.62	5.42	6.10	7.2E-03	0.43	0.40	725	0.23	0.011	734	0.047	0.42	0.47	5.5E-04	0.033	0.031	50.5	0.016	1.5E-03	51.4
Asphalt Spreader [c]	1	225	0.30	10	150	0.36	1.84	5.94	7.3E-03	0.17	0.15	735	0.23	0.024	748	2.7E-03	1.4E-02	0.045	5.5E-05	1.3E-03	1.2E-03	5.00	1.6E-03	1.6E-04	5.09
Hydro Mulcher [c]	1	140	0.42	10	90	0.57	4.23	6.2	6.2E-03	0.32	0.30	633	0.20	0.022	644	2.5E-03	0.019	0.028	2.8E-05	1.5E-03	1.3E-03	2.58	8.0E-04	8.8E-05	2.63
Flatbed Truck	1	200	0.38	10	830	0.57	2.59	5.78	8.0E-03	0.24	0.22	817	0.25	0.046	837	0.024	0.11	0.24	3.3E-04	9.8E-03	9.0E-03	30.8	0.010	1.7E-03	31.5

Onroad Vehicle Emissions

						Emission Rates (g/mi) [c]									Emissions (lb/day)									
Onroad Trips	Vehicle Category	Trips per Day [a]	Total Trips [a]	Trip Distance [b]	Speed [b]	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Material Haul Trucks	Heavy-duty Diesel	10	800	15	35	0.23	0.98	9.96	0.017	0.17	0.10	1,787	5.1E-03	4.8E-03	0.075	0.32	3.29	5.5E-03	0.057	0.035	591	1.7E-03	1.6E-03	592
Concrete Trucks	Heavy-duty Diesel	10	93	15	35	0.23	0.98	9.96	0.017	0.17	0.10	1,787	5.1E-03	4.8E-03	0.075	0.32	3.29	5.5E-03	0.057	0.035	591	1.7E-03	1.6E-03	592
Construction Worker Commute	Light-duty Truck	150	31350	15	35	0.10	3.40	0.41	3.8E-03	0.049	0.021	364	0.016	6.6E-03	0.52	16.8	2.04	0.019	0.24	0.11	1,808	0.081	0.033	1,820

[a] Daily trips for material and concrete delivery assume no more than one trip per hour maximum. Total concrete truck trips assume no more than 40 hours of driving time for truck trips.

[b] Trip distance and speed for delivery trucks and worker commute assume all round trips will originate from Eureka, CA.

[c] Emission rates developed from EMFAC2011 for 2018, with the exception of CH_4 and N_2O. CH_4 and N_2O emission factors were taken from Table 13.5 of The Climate Registry's Default Emissions Factors (TCR, 2014), assuming a 2011 model year.

Onroad Vehicle Emissions (continued)

						Emissions (tons/project)						Emissions (metric tons/project)			
Onroad Trips	Vehicle Category	Trips per Day [a]	Total Trips [a]	Trip Distance [b]	Speed [b]	ROG	CO	NOX	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Material Haul Trucks	Heavy-duty Diesel	10	800	15	35	3.0E-03	0.013	0.13	2.2E-04	2.3E-03	1.4E-03	21.4	6.1E-05	5.8E-05	21.5
Concrete Trucks	Heavy-duty Diesel	10	93	15	35	3.5E-04	1.5E-03	0.015	2.6E-05	2.7E-04	1.6E-04	2.50	7.1E-06	6.7E-06	2.50
Construction Worker Commute	Light-duty Truck	150	31350	15	35	0.054	1.76	0.21	2.0E-03	0.025	0.011	171	7.7E-03	3.1E-03	173

Ground Disturbance Emissions [a]

Volume (CY) [b]	100
k (PM_{10})	0.35
k ($PM_{2.5}$)	0.053
U (mph)	4.92
Moisture Content (%)	12
CY to Ton Conversion	1.26

	PM_{10}	$PM_{2.5}$
Emissions (lb/day)	1.1E-02	1.7E-03
Emissions (tons/project)	4.5E-04	6.8E-05

[a] Emissions of ground disturbance were calculated based on truck loading methodology from Appendix A of the CalEEMod User's Guide (ENVIRON, 2013) and AP-42 Chapter 13.2.4.3 (EPA, 2006).

[b] Ground disturbance volume based on an estimated 800, 10 CY trucks exporting material from the site.

Asphalt Off-Gassing Emissions

Area (ft^2) [a]	134,200
Area (acres)	3.08
VOC Emissions Factor (lb/acre) [b]	2.62
VOC Emissions (lb/day) [c]	0.54
VOC Emissions (tons) [c]	4.0E-03

[a] Asphalt area is based on the PG&E Site Plan Drawing data 01/09/2015.

[b] Sacramento Metropolitan Air Quality Management District default per Appendix A of the CalEEMod User's Guide (ENVIRON, 2013).

[c] It is assumed that VOC emissions are equivalent to ROG emissions.

Appendix B
Construction Emission Calculations

HBGS PTA - Warehouse
Construction Emissions Summary
April 2015

Criteria Pollutant Emissions Summary

	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Daily Emissions (lb/day)	3.28	25.7	32.2	0.046	3.01	11.5
Project Emissions (tons/project)	0.023	0.218	0.187	2.91E-04	0.023	0.013

Greenhouse Gas Emissions Summary

	CO_2	N_2O	CH_4	CO_2e
Project Emissions (metric tons/project)	26.4	0.001	9.33E-04	26.8

Construction Equipment Emissions

						Emission Rates (g/hp-hr) [c]									Emissions (lb/day)									Emissions (tons/project)						Emissions (metric tons/project)			
Offroad Equipment	Number	Horsepower [a]	Load Factor [a]	Hours per Day [b]	Days [b]	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [d]	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Backhoe	2	98	0.37	8	20	0.57	3.83	5.42	0.005	0.42	0.39	517	0.026	0.018	0.73	4.90	6.93	0.006	0.54	0.50	662	0.03	0.023	669	0.007	0.049	0.069	6.27E-05	0.005	0.005	6.00	0.000	2.12E-04	6.07
Air Compressor	2	78	0.48	8	20	0.82	3.84	5.19	0.006	0.45	0.45	568	0.028	0.020	1.08	5.07	6.85	0.008	0.59	0.59	751	0.037	0.026	759	0.011	0.051	0.069	7.92E-05	0.006	0.006	6.81	0.000	2.40E-04	6.89
Manlifts [e]	2	63	0.31	8	20	0.19	3.22	3.11	0.005	0.14	0.13	511	0.025	0.018	0.13	2.22	2.14	0.003	0.099	0.091	352	0.02	0.012	356	0.001	0.022	0.021	3.38E-05	0.001	0.001	3.20	0.000	1.13E-04	3.23
Crane	1	226	0.29	8	2	0.64	2.65	7.62	0.005	0.35	0.32	512	0.025	0.018	0.74	3.07	8.81	0.006	0.40	0.37	592	0.03	0.021	599	0.001	0.003	0.009	5.66E-06	4.02E-04	3.70E-04	0.54	2.65E-05	1.90E-05	0.54

Notes:
[a] Equipment horsepower and load factors were taken from Table 3.3 of Appendix D of the *CalEEMod User's Guide* (ENVIRON, 2013).
[b] Construction activities are expected to take a maximum of approximately 20 days, although some equipment will only be utilized for 2 days. It was assumed that construction activity would occur 8 hours per day.
[c] Emissions rates were taken from Table 3.4 of Appendix D of the CalEEMod User's Guide (ENVIRON, 2013) for 2015, with the exception of CH_4 and N_2O. CH_4 and N_2O emission factors were derived from CO_2 emission factors per Table 13.9 of The Climate Registry's *Default Emissions Factors* (TCR, 2015).
[d] CO_2e emissions were estimated based on the following global warming potentials from Table A-1 of 40 CFR 98: 25 for CH_4 and 298 for N_2O.
[e] Although the manlifts are expected to be propane-fueled, emissions conservatively used emission factors associated with diesel-fueled equipment.

Construction Vehicle Emissions

						Emission Rates (g/mile) [b]									Emissions (lb/day)									Emissions (tons/project)						Emissions (metric tons/project)			
Onroad Trips	Vehicle Category	Maximum Trips per Day	Total Trips	Trip Distance [a]	Speed [a]	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [c]	ROG	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [c]
Dump Trucks	Heavy-duty Diesel	10	20	15	35	0.39	1.64	8.05	0.017	0.26	0.19	1,779	0.088	0.063	0.13	0.54	2.66	0.006	0.087	0.064	588	0.029	0.021	595	1.28E-04	0.001	0.003	5.61E-06	8.67E-05	6.38E-05	0.53	2.64E-05	1.88E-05	0.54
Cement Trucks	Heavy-duty Diesel	12	24	15	35	0.39	1.64	8.05	0.017	0.26	0.19	1,779	0.088	0.063	0.15	0.65	3.19	0.007	0.10	0.077	706	0.035	0.025	714	1.54E-04	0.001	0.003	6.73E-06	1.04E-04	7.65E-05	0.64	3.16E-05	2.26E-05	0.65
Delivery Trucks [d]	Heavy-duty Diesel	2	16	15	35	0.39	1.64	8.05	0.017	0.26	0.19	1,779	0.088	0.063	0.026	0.11	0.53	0.001	0.017	0.013	118	0.006	0.004	119	1.03E-04	4.34E-04	0.002	4.49E-06	6.94E-05	5.10E-05	0.43	2.11E-05	1.51E-05	0.43
Construction Worker Commute	Light-duty Auto/Truck [e]	81	1,620	15	35	0.11	3.41	0.40	0.003	0.048	0.021	341	0.017	0.012	0.28	9.13	1.07	0.009	0.13	0.056	914	0.045	0.032	925	0.003	0.091	0.011	9.28E-05	0.001	0.001	8.29	0.000	2.93E-04	8.39

Notes:
[a] Trip distance and speed for vehicles assume all round trips will originate from Eureka, California.
[b] Emissions rates developed from EMFAC2014 for Humboldt County for 2015, with the exception of CH_4 and N_2O. CH_4 and N_2O emission factors were derived from CO_2 emission factors per Table 13.9 of The Climate Registry's *Default Emissions Factors* (TCR, 2015).
[c] CO_2e emissions were estimated based on the following global warming potentials from Table A-1 of 40 CFR 98: 25 for CH_4 and 298 for N_2O.
[d] It was assumed that a maximum of 2 delivery trucks would arrive on the same day, although only 16 are expected during the entire 20-day construction period.
[e] Emission factors for the Light-duty Auto/Truck vehicle category assume 50% Light-duty Auto and 25% of each of the two Light-duty Truck types.

Fugitive Dust Emissions from Earth Moving

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
U (mph) [b]	4.9	4.9
M (%) [a]	12	12
Volume (yd^3)	65	65
Conversion Factor (tons/yd^3) [a]	1.26	1.26
Emission Factor (lb/ton) [c]	8.9E-05	1.4E-05
Emissions (lb/day)	3.67E-04	5.56E-05
Emissions (tons/project)	3.67E-06	5.56E-07

Notes:
[a] k, M, and conversion factor taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (ENVIRON, 2013).
[b] U taken as the CalEEMod default for Humboldt County, and converted from m/s to mph.
[c] Emission factor calculated as follows, per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (ENVIRON, 2013):
Emission Factor (lb/ton) = k x 0.0032 x $[U / 5]^{1.3}$ / $[M / 2]^{1.4}$

Fugitive Dust Emissions from Vehicle Travel on Paved Roads

Parameter	PM_{10}	$PM_{2.5}$
Average Weight (tons) [a]	2.4	2.4
k (g/mile) [b]	1.0	0.25
sL (g/m^2) [a]	0.1	0.1
Emission Factor (g/mile) [c]	0.30	0.075
Emissions (lb/day)	1.04	9.74
Emissions (tons/project)	0.008	1.74E-04

Notes:
[a] Average Weight and sL taken as the default value from CalEEMod.
[b] k taken from Table 13.2.1-1 of Section 13.2.1 of *AP-42* (EPA, 2011).
[c] Emission factor calculated using Equation 1 from Section 13.2.1 of *AP-42* (EPA, 2011):
Emission Factor (g/mile) = k x $(sL)^{0.91}$ x $(\text{Average Weight})^{1.02}$

HBGS PTA - Warehouse
EMFAC2014 Results
April 2015

Calendar Year	Season	Area	Vehicle Class	Fuel	Temperature (°)	Humidity (%)	Process	Speed (mph)	Pollutant	Emission Rate (g/mile)
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	CO	1.640166095
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	NOx	8.048324311
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	SOx	0.016970146
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	ROG	0.387539434
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	CO2	1778.754188
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	PM10	0.164542865
2015	Annual	Humboldt (NC)	HHDT	Dsl	56	76	RUNEX	35	PM2_5	0.157424814
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	CO	2.018701256
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	NOx	0.210116423
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	SOx	0.003031412
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	ROG	0.059872044
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	CO2	300.3674119
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	PM10	0.002357584
2015	Annual	Humboldt (NC)	LDA	Gas	56	76	RUNEX	35	PM2_5	0.002172811
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	CO	6.701089193
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	NOx	0.738498453
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	SOx	0.003640375
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	ROG	0.223488729
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	CO2	353.3848844
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	PM10	0.006660203
2015	Annual	Humboldt (NC)	LDT1	Gas	56	76	RUNEX	35	PM2_5	0.006147893
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	CO	2.891249741
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	NOx	0.432512519
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	SOx	0.004151569
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	ROG	0.08193679
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	CO2	411.1525137
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	PM10	0.002509098
2015	Annual	Humboldt (NC)	LDT2	Gas	56	76	RUNEX	35	PM2_5	0.00231187
2015	Annual	Humboldt (NC)	HHDT	Dsl			PMTW		PM10	0.036
2015	Annual	Humboldt (NC)	HHDT	Dsl			PMTW		PM2_5	0.009
2015	Annual	Humboldt (NC)	HHDT	Dsl			PMBW		PM10	0.06174
2015	Annual	Humboldt (NC)	HHDT	Dsl			PMBW		PM2_5	0.02646
2015	Annual	Humboldt (NC)	LDA	Gas			PMTW		PM10	0.008
2015	Annual	Humboldt (NC)	LDA	Gas			PMTW		PM2_5	0.002
2015	Annual	Humboldt (NC)	LDA	Gas			PMBW		PM10	0.03675
2015	Annual	Humboldt (NC)	LDA	Gas			PMBW		PM2_5	0.01575
2015	Annual	Humboldt (NC)	LDT1	Gas			PMTW		PM10	0.008
2015	Annual	Humboldt (NC)	LDT1	Gas			PMTW		PM2_5	0.002
2015	Annual	Humboldt (NC)	LDT1	Gas			PMBW		PM10	0.03675
2015	Annual	Humboldt (NC)	LDT1	Gas			PMBW		PM2_5	0.01575
2015	Annual	Humboldt (NC)	LDT2	Gas			PMTW		PM10	0.008
2015	Annual	Humboldt (NC)	LDT2	Gas			PMTW		PM2_5	0.002
2015	Annual	Humboldt (NC)	LDT2	Gas			PMBW		PM10	0.03675
2015	Annual	Humboldt (NC)	LDT2	Gas			PMBW		PM2_5	0.01575

Appendix C
HBGS Key Observation Points Photos

View from King Salmon Avenue with the location of the Waste Management Building outlined in red.

FIGURE C-1
KEY OBSERVATION POINT 2
HUMBOLDT BAY GENERATING STATION

CH2MHILL

View from Humboldt Hill with the location of the Waste Management Building outlined in red.

FIGURE C-2
KEY OBSERVATION POINT 4
HUMBOLDT BAY GENERATING STATION

CH2MHILL

View from the Highway 101 scenic overlook, with the Waste Management Building outlined in red.

FIGURE C-3
KEY OBSERVATION POINT 5
HUMBOLDT BAY GENERATING STATION

CH2MHILL

Appendix D
Property Owners within 1,000 feet of the HBGS Site

Land Owners within 1,000 feet of the Humboldt Bay Generating Station Site Boundary

APN 305-141-005
Humboldt Bay Harbor Recreational & Conservation District
PO Box 1030
Eureka, CA 95502

APN 305-131-013, 016 & 038
Jim & Claire Hoff
3831 Turtle Creek Blvd – 20C
Dallas, Tx 75219

APN 305-131-003
North Coast Railroad Authority
419 Talmage Road, Ste M
Ukiah, CA 95482

APN 305-131-026
Humboldt Community Services District
P.O. Box 158
Cutten, CA 95534