Exhibit C

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DRAFT RESOLUTION

Before the Planning Commission
in and for the County of Monterey, State of California

In the matter of the application of:
DUKE ENERGY MOSS LANDING LLC (VISTRA ENERGY) (PLN180394)
RESOLUTION NO. ----
Resolution by the Monterey County Planning Commission:

1. Adopting a Mitigated Negative Declaration;
2. Approving a Combined Development Permit consisting of a:
    a. Coastal Administrative Permit amending the Moss Landing Power Plant Master Plan to change the use within an existing building from storage of electric generating turbines to establish of a 20-year life span battery energy storage system, and
    b. Coastal Administrative Permit for development within 750 feet of a known archaeological site for the excavation and placement of the substation, replacement of an existing transformer, installation of new inverters and transformers on-site, and grading of approximately 3,750 cubic yards of cut; and
3. Adopting a Mitigation Monitoring and Reporting Program.

[PLN180394, Duke Energy Moss Landing LLC, 11283 Dolan Road, Moss Landing, North County Land Use Plan, Moss Landing Community Plan (Assessor's Parcel Number: 133-181-011-000)]

The VISTRA ENERGY application (PLN180394) came on for a public hearing before the Monterey County Planning Commission on March 27, 2019. Having considered all the written and documentary evidence, the administrative record, the staff report, oral testimony, and other evidence presented, the Monterey County Planning Commission finds and decides as follows:

FINDINGS

1. **FINDING:** **CONSISTENCY** – The project, as conditioned, is consistent with the applicable plans and policies which designate this area as appropriate for development.

EVIDENCE: a) The project has been reviewed for consistency with the text, policies, and regulations in:

- 1982 Monterey County General Plan (General Plan);
- North County Land Use Plan (NC LUP);
- Moss Landing Community Plan (MLCP);
- Monterey County Coastal Implementation Plan, Part 2 (CIP);
- Monterey County Zoning Ordinance (Title 20);

No conflicts were found to exist. The subject property is located within the coastal zone; therefore, the 2010 Monterey County General Plan does not apply.

b) Allowed Use. The subject property is located at 11283 Dolan Road, Moss Landing (Assessor's Parcel Number 133-181-011-000). The land use designation of the property is Heavy Industrial, Coastal Dependent as shown in MLCP Figure 2, Land Use Plan map. Zoning of the property is Heavy Industrial, Coastal Zone or "HI(CZ)". Title 20 Section 20.28.050.G allows uses accessory to industrial uses in the Heavy Industrial District. The project is for the establishment of a Battery Energy Storage System (BESS) within an existing building and accessory components (substation, inverters, and transformers) adjacent to the building to allow storage of energy received at the site. As explained in Finding 2, Evidence "a" below, the project is supportive of the existing power generation and transmission use on the site and is, therefore, accessory to the established use.

c) Lot Legality. The subject property was created through a Minor Subdivision (PLN970371) approved by the County and filed by Parcel Map recorded in Volume 20, Parcel Maps, Page 64.

d) Review of Development Standards. NC LUP Chapter 5.5, Moss Landing Community Plan – Energy Facilities and Industrial Development contain policies that allow for the expansion and modernization of the existing energy facility and industrial use on the property and is implemented by General Development Standards contained in CIP Section 20.144.160.C, Energy Facilities and Industrial Development. The project is consistent with both development policies and standards because the project is contained within the existing development area of the established industrial site and is supportive of efficient energy production and storage. In accordance with CIP Section 20.144.160.C.1.c, the Moss Landing Power Plant Master Plan is amended herein to include the BESS project.

e) Design. NC LUP Chapter 5.6, Moss Landing Community Plan – Visual Resources and Community Character provides polices for protection of scenic and visual resources of the area, specifically in the Public Viewshed. These policies are implemented through

regulation contained in CIP Section 20.144.160.D. A project site is considered to be in the Public Viewshed if any portion of the proposed development is visible from or impedes the visual access to the Moss Landing Community, harbor and dunes from Highway 1 or any other public viewing area. The project is located on an adjacent property to Highway 1 to the east. Staff inspected the site and surrounding areas and determined that site improvements would not be visible from and would not impede views of the community, harbor, or dunes. Existing development on the property is industrial and the project components located outside of the existing building are consistent with the industrial character of the site. As discussed in Evidence "j", no objections to aesthetics were made by the North County Land Use Advisory Committee.

f) Public Access. The project meets applicable public access requirements. See Finding 7 and supporting evidence.

g) Archaeological Resources. NC LUP Key Policy 2.9.1 and MLCP General Policy 5.6.2.4 requires the protection of archaeological resources in the area. These policies are implemented through regulations found in CIP Section 20.144.110. Mounty County resource information indicates that the development is within a high archaeological zone and within 750 feet of a positive archaeological site. Consistent with these policies and regulations, an archaeological report was submitted (see Finding 2, Evidence "c") which concluded that the area of site disturbance is outside of the delineated positive archaeological site. Due to the history of disturbance on the site and previous archaeological reports prepared, the archaeologist assumed that it would be unlikely that resources exist in the project area. However, exploratory digging within the excavation area was not feasible as it was covered with asphalt. Therefore, this entitlement includes a Coastal Administrative Permit to allow development within 750 feet of a positive archaeological site.

h) Traffic/Transportation. MLCP Policy 5.5.2.7 identifies Dolan Road as a major access point onto the property to reduce traffic hazards along Highway 1. The project is consistent with this policy because primary vehicular access is provided by an existing driveway off Dolan Road, approximately ¾ of a mile east of the Highway 1 and Dolan Road intersection; secondary access, for egress only, is located approximately 550 feet east of Highway 1 off Dolan Road; and tertiary access, for emergency services only, is located over 800 feet from the intersection of Highway 1 and Dolan Road, directly off Highway 1. The operational component of the project would result in approximately 5 or fewer new employees on the site. To address temporary construction traffic, the project establishes a maximum limit of 420 temporary employees for construction, resulting in a temporary maximum daily peak of 924 daily vehicle trips. In accordance with Section 20.144.120 of the CIP, the project

application included a traffic assessment (Finding 2, Evidence "c"). In addition, the application includes a preliminary Construction Management Plan (CMP) to address the temporary increase in traffic. Implementation of this CMP would ensure that construction traffic does not impact congested intersections or road segments by avoiding peak hour trips, routing traffic away from Highway 1, avoiding additive traffic impacts from regular repair and maintenance activities at the site, and will be temporary in nature. During normal maintenance activities on the site and limits ingress and egress to Dolan Road during off-peak hours only. RMA-Public Works has reviewed the preliminary CMP, as well as the entire project application and found it all acceptable. To ensure successful implementation of the CMP, RMA-Public Works recommended the project be conditioned requiring their approval of a final CMP prior to issuance of construction permits, that compliance with the approved CMP be monitored during construction, and that a compliance with the CMP is documented in a report to the RMA prior to final clearance of construction permits.

i) Biological Resources. NC LUP Key Policy 2.3.1 identifies environmentally sensitive habitats areas (ESHA) in North County as unique, limited, and fragile which necessitate protection, maintenance, enhancement, and where possible restoration. Implementing regulations in CIP Section 20.144.040 require submittal of a biological survey for developments located within, potentially located in, or within 100-feet of ESHA, as shown on current resource maps, or through the planner's onsite investigation. Monterey County Geographic Information System (GIS) contains metadata from the California Natural Diversity Database which indicates the potential for western snowy plover, bank swallow, short-eared owl, longfin smelt, Congdon's tarplant, burrowing owl, and California red-legged frog to be onsite. The existing conditions of the site, which consists of an operating energy facility are not considered ESHA (see subsequent Evidence "l"). Pavement and structures are found within a 300-foot radius of the development area outside of the existing building. Based on GIS data, the project area is approximately 2,500 liner feet from potential for California red-legged frog habitat. Based on this information and consistent with the applicable regulations, staff determined that there would be no impact to biological resources. See Finding 6, Evidence "h" for additional discussion on biological resources.

j) The project was referred to the North County Land Use Advisory Committee (LUAC) for review on November 7, 2018. The LUAC recommended approval of the project as proposed with a vote of 6 to zero, with 3 members absent.

k) Staff conducted site inspections on September 18, 2018 and January 14, 2019 to verify that the project on the subject property conforms to the plans listed above.

l) The application, plans, and supporting materials submitted by the project applicant to Monterey County RMA-Planning for the proposed development found in RMA-Planning File No. PLN180394.

2. **FINDING:** **SITE SUITABILITY –** The site is physically suitable for the proposed use.

EVIDENCE: a) The project will establish a battery energy storage system within an existing energy facility illustrated in MLCP Figure 5, Energy Facilities & Industrial Development. This system is supportive of the existing electrical uses on the site as it will allow off-grid storage of energy transmitted to the site during off-peak use, which will then be supplied back into the grid during peak use. Therefore, the use is suitable for the site.

b) The project was reviewed by RMA-Planning, North County Fire Protection District, RMA-Public Works, RMA-Environmental Services and Environmental Health Bureau. There has been no indication from these departments/agencies that the site is not suitable for the proposed development. Conditions recommended have been incorporated.

c) Potential impacts to archaeological and tribal cultural resources, biological resources, soils, traffic/transportation and cumulative impact were identified. The following reports have been prepared and submitted with the application:

- "Archaeological Sensitivity Assessment for the Moss Landing Battery Energy Storage System Project, Moss Landing Power Plant, Monterey County, California" (LIB180424) prepared by Lisa Holm, Senior Archaeologist, Pacific Legacy, Inc., Berkeley, CA, dated December 12, 2018.
- "Literature Review for the Moss Landing Battery Energy Storage Project" (LIB190003) prepared by John Holson, Principal Investigator, Pacific Legacy, Inc., Berkeley, CA, dated September 4, 2018.
- "Geotechnical Report for Planning Purposes" (LIB190004) prepared by Michelle L. Hack, Program Manager, Sargent & Lundy Engineers, Ltd., Chicago, IL, dated September 7, 2018.
- "Moss Landing Power Plant Geologic Hazards Report" (LIB190005) prepared by Julian C. Isham, Geology Manager, P.G., C.E.G., C.H.G, CB&I, Sacramento, CA, dated March 2016.
- "Soil Management Plan: Parcels I, III, and IV. Moss Landing Power Plant" (LIB190007) prepared by Leon Gearhart, Senior Staff Scientist, Jacobson James & Associates, Inc., Roseville, CA, dated April 6, 2018.

- "Moss Landing Battery Energy Storage Project (PLN180394) Traffic Assessment and Construction Transportation Management Plan (CTMP)" (LIB190012) prepared by Keith B. Higgins, Traffic Engineer, PE, TE, Gilroy, CA, dated September 6, 2018.
- "Moss Landing Battery Energy Storage Facility Water Supply Assessment" (LIB190021) prepared by prepared by Michelle Hack, Sargent & Lundy Engineers, Ltd., Chicago, IL, dated September 7, 2018.

d) The application, plans and supporting materials submitted by the project applicant to Monterey County RMA-Planning for the proposed development are found in Project File PLN180394.

3. **FINDING:** **HEALTH AND SAFETY –** The establishment, maintenance, or operation of the project will not under the circumstances of this particular case be detrimental to the health, safety, peace, morals, comfort, and general welfare of persons residing or working in the neighborhood of such proposed use, or be detrimental or injurious to property and improvements in the neighborhood or to the general welfare of the County.

EVIDENCE:

a) The project was reviewed by RMA-Planning, RMA-Environmental Services, and Environmental Health Bureau. Conditions have been recommended, where appropriate, to ensure that the project will not have an adverse effect on the health, safety, and welfare of persons either residing or working in the neighborhood.

b) The project includes a fire safety plan in the event the energy storage batteries or their accessory components catch fire. The North County Fire Protection District has reviewed this plan, as well as the entire project application, and found it acceptable. No conditions of approval were recommended.

c) The project includes a preliminary Construction Management Plan (CMP) to control construction traffic. RMA-Public works has reviewed this plan and a recommended condition of approval requiring submittal and approval of a final CMP has been incorporated. Compliance with the CMP and respective condition would address any temporary traffic hazard that may occur. See Finding 1, Evidence "h".

d) Potable water is provided from existing service by the Moss Landing Mutual Water Company and wastewater services are provided through an on-site septic system. The project would not require intensification of these services provided.

e) The project includes a change of use to establish a battery energy storage system within an existing industrial site. Existing facilities including parking, access, and other similar infrastructure are already provided on the site.

f) The application, plans, and supporting materials submitted by the project applicant to Monterey County RMA-Planning for the proposed development found in RMA-Planning File No. PLN180394.

5. **FINDING:** **NO VIOLATIONS –** The subject property is in compliance with all rules and regulations pertaining to zoning uses, subdivision, and any other applicable provisions of the County's zoning ordinance. No violations exist on the property.

EVIDENCE:

a) Staff reviewed Monterey County RMA-Planning and RMA-Building Services records and is not aware of any violations existing on subject property.

b) The application, plans and supporting materials submitted by the project applicant to Monterey County RMA-Planning for the proposed development are found in Project File PLN180394.

6. **FINDING:** **CEQA (Mitigated Negative Declaration) –** On the basis of the whole record before the Monterey County Planning Commission, there is no substantial evidence that the proposed project as designed, conditioned and mitigated will have a significant effect on the environment. The Mitigated Negative Declaration reflects the independent judgement and analysis of the County.

EVIDENCE:

a) Monterey County RMA-Planning prepared an Initial Study and Draft Mitigated Negative Declaration (IS/MND) in accordance with CEQA. The IS/MND is on file with RMA-Planning and is hereby incorporated by reference. The IS/MND was circulated for public review from January 28, 2018 through February 28, 2018 (SCH No. 2019011067).

b) During environmental review, no impacts to aesthetics, agricultural and forest resources, biological resources, energy, mineral resources, noise, population/housing, public services, recreation, utilities/service systems, and wildland fire hazards were identified. See additional discussion on biological resources in subsequent Evidence "h" below.

c) Potential impacts to air quality, cultural resources, geology/soils, greenhouse gas emissions, hazard/hazardous materials, hydrology and water quality, and land use planning were identified. Implementation of the respective NCLUP policies and regulations allow for incorporation of standard conditions of approval which would reduce potential impacts to these resources to a less than significant level.

d) Potential impacts to transportation/traffic resulting from temporary construction traffic were identified (see Finding 1, Evidence "h" and Finding 3, Evidence "c"). The baseline traffic conditions of the site were determined by considering the holistic use of the subject property. Typically, there are between 30 to 60 employees at site and during routine repair and maintenance operations, there are approximately 420 employees at the site. Temporary construction traffic would increase vehicle traffic to and from the site, resulting in a potential impact. Impacts have been mitigated by design because

the project includes a preliminary Construction Management Plan (CMP), prepared in consultation with a Traffic Engineer (Finding 2, Evidence "c"). The CMP contains strategies that would reduce or eliminate peak hour construction impacts and limit the amount of construction employees to ensure the traffic does not go beyond the baseline condition. A standard condition of approval recommended by RMA-Public Works has been incorporated requiring the applicant to submit a Final Construction Management Plan. This would ensure proper implementation of the CMP and monitoring of traffic during construction. With inclusion of the CMP, there will be less than significant impacts to traffic from temporary construction activities.

e) Potential impacts to tribal cultural resources were identified. Monterey County Geographic Information System (GIS) indicates that the development area is within an area of high archaeological sensitivity and in accordance with CIP Section 20.145.110.B.1.a, two archaeological assessments were prepared and submitted for the project. These assessments relied on previous studies prepared for MLPP as well as site specific reconnaissance and identified that the proposed excavation area for the substation (**Figure 6**) has been previously disturbed from previous infrastructure installation to a depth of 20 feet.

The site is in the aboriginal territory of the Ohlone/Coastanoan-Esselen Nation (OCEN) and in accordance with Public Resource Code 21080.3.1, tribal consultation between OCEN and County Staff occurred on December 11, 2018. OCEN identified that the entire Moss Landing are is a sacred ground and they object to the excavation for the substation area in principal but understand that development will continue in the area and have requested the presence of a tribal monitor during excavation if it is allowed to proceed. This is consistent with CEQA examples of mitigation measures for tribal cultural resources; that the mitigation preference for historical and archaeological resources is preservation in place, if feasible. Staff worked with OCEN to identify other acceptable mitigations if avoidance would be infeasible. Because County records for previous permits on MLPP demonstrate that the area for proposed excavation of the substation had been previously disturbed, OCEN identified that if the area of the substation area had been previously disturbed and replaced with *new soil*, there would be no potential for impacts and mitigation would not be necessary. The project applicant and County staff could not provide substantial evidence to show the area has been filled with new soil. Therefore, OCEN recommended that a tribal monitor be present during the excavation of the substation area and if any artifacts are to be found, they must be provided to the tribe. Implementation of this recommended mitigation

(Condition No. 17 – MM01) would reduce potential impacts to tribal cultural resources to a less than significant level.

f) During environmental review, potential cumulative impacts to air quality, greenhouse gas emissions, hazards/hazardous materials, traffic and tribal cultural resource have been identified resulting from temporary construction activities. There are two (2) projects within the project site's proximity that were taken into consideration with the cumulative impact analysis. The "Elkhorn Battery Energy Storage System Project" or "PG&E", located on an adjacent property to the north (PLN180371) and an "RV and Boat Storage Project" or "McCombs" on Dolan Road east of the subject property (PLN160443). These two (2) projects including the Vistra Project, have the potential to create cumulative impacts; however, these impacts would be during the construction phase of the project and/or would not exceed threshold levels established in the CEQA Air Quality Guidelines and Air Quality Management Plan for the Monterey Bay Region. Therefore, these impacts are considered less than significant.

g) During circulation of the IS/MND, staff received a comment letter from Caltrans. Caltrans expressed appreciation that CMP initiatives are proposed (see Finding 1, Evidence "h") and recommended that a monitoring plan or report be incorporated for the duration of construction of the project to evaluate the strategy and ensure compliance. The project has been condition (Condition No. 11) for the CMP to include a monitoring report to ensure compliance and prior to the final of a construction permit, a final report shall be submitted to RMA-Planning that documents the mitigation measures implemented and their success.

h) During circulation of the IS/MND, staff received a comment letter from California Department of Fish and Wildlife (CDFW) identifying potential impacts to special-status species: California Tiger Salamander (CTS), Santa Cruz Long-Toed Salamander (SCLTS) and Peregrine Falcon and recommended eight (8) mitigation measure. During a phone conference held between the County and CDFW on March 8, 2019, CDFW recommended mitigation measures with the understanding of a potential in traffic increase. Existing operations without the project include 420 employees during the MLPP maintenance component which occur several times throughout the year. The IS/MND clearly identified the existing baseline traffic conditions, site conditions and disclosed that with implementation of the CMP, the project would not exceed the baseline 420 employees resulting in 924 vehicle trips. Further traffic initiatives such as carpooling, enforcement of one site entrance per vehicle, and scheduling shift changes and deliveries of construction material during off-peak hours to further reduce traffic levels below baseline. (See Finding 1, Evidence "h").

Subsequently, a letter from the applicant's biologist (**Exhibit H**) was provided in response to the CDFW letter. On August 13, 2018, the applicant's biologist conducted a survey and assessed the potential for special-status species to occur within the project site. In addition to this biological survey, there were two previous survey reports completed in 2016 and 2017 for the Deep Water Desal site, east of the existing MLPP and one mile east of the BESS project site. The only observation from these reports was the capture of one adult CTS in January of 2017. From knowledge of the biological resources conducted from these two reports, the survey conducted on August 13, 2018, the existing operational activities of the MLPP, and the proposal to utilize an existing building and paved areas, no further biological investigations were recommended.

California Tiger Salamander (CTS) and Santa Cruz Long-Toed Salamander (SCLTS)

The California Natural Diversity Database (CNDDB) contains three occurrence records for SCLTS in the project vicinity, the nearest of which occurs 1.2 miles from the installation site in wetlands associated with Moro Cojo Slough. The project site and vicinity were assessed for the potential presence of suitable aquatic or upland CTS and SCLTS habitat. CTS have specific habitat requirements including freshwater ponds or inundated pools and adjacent or nearby burrow habitat. SCLTS requires shallow ephemeral freshwater pools and breed near suitable upland habitat that include a moist area that organisms can survive through. There were freshwater ponds, inundated pools or ephemeral freshwater pools within or within 100 feet of the project site (see **Figure 10**). Elkhorn Slough is located about a quarter of a mile north of the project site and the Moss Landing Harbor is located less than a quarter mile east of the project site – on the other side of Highway 1. Two disturbed, undeveloped patches of ruderal grasses and ground burrows were observed within 100 feet of the project site boundary. The March 7, 2019 biologist letter identified the ruderal patches to contain low quality potential upland habitat for SCLTS. The project does not propose to disturb any burrows and any attempt for CTS and SCLTS to migrate to the two identified habitats would encounter significant barriers such as buildings, industrial development and operations, fencing and berms that already exist on-site. It is the opinion of the biologist that installation of the proposed project would not increase the potential of encountering or taking CTS and/or SCLTS when compared to existing conditions.

Peregrine Falcon
The March 7, 2019 biological letter identified the Peregrine Falcon forages over open landscape, including urban areas, agricultural lands, harbors, salt marshes and grasslands. In 2015, observation of a nesting pair was spotted on one of the MLPP smokestacks as recorded in the CNDDB. This nesting activity occurred on the MLPP despite of the existing operational activities and generated noise. Project installation and noise would be similar to what is already existing on the site. The proposed project would not increase the potential of encountering or taking a Peregrine Falcon when compared to the existing site conditions.

Thus, analysis of the proposed project in reference to the existing operational site conditions and the biologist letter, identify that there are no potential impacts to special-status species such as CTS, SCLTS and Peregrine Falcon. Findings and Evidences contained in this resolution amplify the existing baseline conditions and clarify that the project would have no impact to biological resources. No issues remain.

i) All project changes required to avoid significant effects on the environment have been incorporated into the project and/or are made conditions of approval. A Condition Compliance and Mitigation Monitoring and/or Reporting Plan has been prepared in accordance with Monterey County regulations and is designed to ensure compliance during project implementation. The applicant must enter into an "Agreement to Implement a Mitigation Monitoring and/or Reporting Program" as a condition of project approval (Condition No. 10).

j) Staff analysis contained in the Initial Study and the record as a whole indicate the project could result in changes to the resources listed in Section 753.5(d) of the California Department of Fish and Game (CDFG) regulations. All land development projects that are subject to environmental review are subject to a State filing fee plus the County recording fee, unless the Department of Fish and Game determines that the project will have no effect on fish and wildlife resources. For purposes of the Fish and Game Code, the project may have a significant adverse impact on the fish and wildlife resources upon which the wildlife depends. Therefore, the project will be required to pay the State fee plus a fee payable to the Monterey County Clerk/Recorder for processing said fee and posting the Notice of Determination (NOD) (Condition No. 9).

k) Monterey County RMA-Planning, located at 1441 Shilling Place, 2nd Floor, Salinas, California, 93901, is the custodian of documents and other materials that constitute the record of proceedings upon which the decision to adopt the Mitigated Negative Declaration is based.

7. **FINDING:** **PUBLIC ACCESS –** The project is in conformance with the public access and recreation policies of the Coastal Act (specifically Chapter 3 of the Coastal Act of 1976, commencing with Section 30200 of the Public Resources Code) and does not interfere with any form of historic public use or trust rights.

EVIDENCE:

a) No access is required as part of the project as no substantial adverse impact on access, either individually or cumulatively, as described in Section 20.144.150 of the CIP can be demonstrated.

b) No evidence or documentation has been submitted or found showing the existence of historic public use or trust rights over this property.

c) The subject project site is not located in an area requiring public access delineated in Moss Landing Community Plan Figure 4, Moss Landing Public Access and Recreation or North County Land Use Plan Figure 6, Shoreline Access/Trails.

d) Staff conducted site inspections on September 18, 2018 and January 14, 2019 and no public access areas were observed.

e) The application, plans and supporting materials submitted by the project applicant to Monterey County RMA-Planning for the proposed development are found in Project File PLN180394.

8. **FINDING:** **APPEALABILITY –** The decision on this project may be appealed to the Board of Supervisors and the California Coastal Commission.

EVIDENCE:

a) Board of Supervisors. Pursuant to Title 20 Section 20.86.030, an appeal of the Planning Commission's approval for this project may be made to the Board of Supervisors by any public agency or person aggrieved by their decision.

b) Coastal Commission. Pursuant to Section 20.86.080.A of Title 20, the project is subject to appeal by/to the California Coastal Commission because it involves development that is permitted in the underlying zone as a conditional use (Development within 750 feet of known archaeological resources).

DECISION

NOW, THEREFORE, based on the above findings and evidence, the Planning Commission does hereby:

1. Adopt a Mitigated Negative Declaration;
2. Approve a Combined Development Permit consisting of a:
    a. Coastal Administrative Permit amending the Moss Landing Power Plant Master Plan to change the use within an existing building from storage of electric generating turbines to establish of a 20-year life span battery energy storage system, and
    b. Coastal Administrative Permit for development within 750 feet of a known archaeological site for the excavation and placement of the substation, replacement of an existing transformer, installation of new inverters and transformers on-site, and grading of approximately 3,750 cubic yards of cut; and
3. Adopt a Mitigation Monitoring and Reporting Program.

PASSED AND ADOPTED this 27th day of March 2019 upon motion of Commissioner _____, seconded by Commissioner _____, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Brandon Swanson, Planning Commission Secretary

COPY OF THIS DECISION MAILED TO APPLICANT ON _____.

THIS APPLICATION IS APPEALABLE TO THE BOARD OF SUPERVISORS.

IF ANYONE WISHES TO APPEAL THIS DECISION, AN APPEAL FORM MUST BE COMPLETED AND SUBMITTED TO THE CLERK TO THE BOARD ALONG WITH THE APPROPRIATE FILING FEE ON OR BEFORE _____.

THIS PROJECT IS LOCATED IN THE COASTAL ZONE AND IS APPEALABLE TO THE COASTAL COMMISSION. UPON RECEIPT OF NOTIFICATION OF THE FINAL LOCAL ACTION NOTICE (FLAN) STATING THE DECISION BY THE FINAL DECISION MAKING BODY, THE COMMISSION ESTABLISHES A 10 WORKING DAY APPEAL PERIOD. AN APPEAL FORM MUST BE FILED WITH THE COASTAL COMMISSION. FOR FURTHER INFORMATION, CONTACT THE COASTAL COMMISSION AT (831) 427-4863 OR AT 725 FRONT STREET, SUITE 300, SANTA CRUZ, CA.

This decision, if this is the final administrative decision, is subject to judicial review pursuant to California Code of Civil Procedure Sections 1094.5 and 1094.6. Any Petition for Writ of Mandate must be filed with the Court no later than the 90th day following the date on which this decision becomes final.

NOTES

1. You will need a building permit and must comply with the Monterey County Building Ordinance in every respect.

   Additionally, the Zoning Ordinance provides that no building permit shall be issued, nor any use conducted, otherwise than in accordance with the conditions and terms of the permit granted or until ten days after the mailing of notice of the granting of the permit by the appropriate authority, or after granting of the permit by the Board of Supervisors in the event of appeal.

   Do not start any construction or occupy any building until you have obtained the necessary permits and use clearances from Monterey County RMA-Planning and RMA-Building Services offices in Salinas.

2. This permit expires 3 years after the above date of granting thereof unless construction or use is started within this period.

Monterey County RMA Planning

DRAFT Conditions of Approval/Implementation Plan/Mitigation Monitoring and Reporting Plan

PLN180394

1. PD001 - SPECIFIC USES ONLY

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: This permit (PLN180394) allows an Amendment to the Moss Landing Power Plant Master Plan consisting of an update to the existing and proposed uses and a Combined Development Permit consisting of a: 1.) Coastal Administrative Permit amending the Moss Landing Power Plant Master Plan to change the use within an existing building from storage of electric generating turbines to establish of a 20-year life span battery energy storage system, and 2.) Coastal Administrative Permit for development within 750 feet of a known archaeological site for the excavation and placement of the substation, replacement of an existing transformer, installation of new inverters and transformers on-site, and grading of approximately 3,750 cubic yards of cut. The property is located at 11283 Dolan Road, Moss Landing (Assessor's Parcel Number 133-181-011-000), Moss Landing Community Plan. This permit was approved in accordance with County ordinances and land use regulations subject to the terms and conditions described in the project file. Neither the uses nor the construction allowed by this permit shall commence unless and until all of the conditions of this permit are met to the satisfaction of the RMA Chief of Planning. Any use or construction not in substantial conformance with the terms and conditions of this permit is a violation of County regulations and may result in modification or revocation of this permit and subsequent legal action. No use or construction other than that specified by this permit is allowed unless additional permits are approved by the appropriate authorities. To the extent that the County has delegated any condition compliance or mitigation monitoring to the Monterey County Water Resources Agency, the Water Resources Agency shall provide all information requested by the County and the County shall bear ultimate responsibility to ensure that conditions and mitigation measures are properly fulfilled. (RMA - Planning)

Compliance or Monitoring Action to be Performed: The Owner/Applicant shall adhere to conditions and uses specified in the permit on an ongoing basis unless otherwise stated.

2. PD002 - NOTICE PERMIT APPROVAL

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: The applicant shall record a Permit Approval Notice. This notice shall state:
"An Amendment to the Moss Landing Power Plant and Combined Development Permit (Resolution Number _____) was approved by the Monterey County Planning Commission for Assessor's Parcel Number 133-181-011-000 on March 27, 2019. The permit was granted subject to 17 conditions of approval which run with the land. A copy of the permit is on file with Monterey County RMA - Planning."

Proof of recordation of this notice shall be furnished to the RMA Chief of Planning prior to issuance of grading and building permits, Certificates of Compliance, or commencement of use, whichever occurs first and as applicable. (RMA - Planning)

Compliance or Monitoring Action to be Performed: Prior to the issuance of grading and building permits, certificates of compliance, or commencement of use, whichever occurs first and as applicable, the Owner/Applicant shall provide proof of recordation of this notice to the RMA - Planning.

3. PD003(A) - CULTURAL RESOURCES NEGATIVE ARCHAEOLOGICAL REPORT

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: If, during the course of construction, cultural, archaeological, historical or paleontological resources are uncovered at the site (surface or subsurface resources) work shall be halted immediately within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. Monterey County RMA - Planning and a qualified archaeologist (i.e., an archaeologist registered with the Register of Professional Archaeologists) shall be immediately contacted by the responsible individual present on-site. When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for recovery.
(RMA - Planning)

Compliance or Monitoring Action to be Performed: The Owner/Applicant shall adhere to this condition on an on-going basis.

Prior to the issuance of grading or building permits and/or prior to the recordation of the final/parcel map, whichever occurs first, the Owner/Applicant shall include requirements of this condition as a note on all grading and building plans. The note shall state "Stop work within 50 meters (165 feet) of uncovered resource and contact Monterey County RMA - Planning and a qualified archaeologist immediately if cultural, archaeological, historical or paleontological resources are uncovered."

When contacted, the project planner and the archaeologist shall immediately visit the site to determine the extent of the resources and to develop proper mitigation measures required for the discovery.

4. PD002(A) - ATTACH RESOLUTION TO CONSTRUCTION PLANS

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: A copy of the Resolution of Approval (Resolution No. ***) for the Amendment to the Moss Landing Power Plant Master Plan and Coastal Administrative Permit and Design Approval Permit (Planning File No.: PLN180394) shall be incorporated onto the construction plans for the project prior to the issuance of a grading or building permit. The Contractor/Owner/Applicant shall be responsible for compliance with all conditions of approval. (RMA - Planning)

Compliance or Monitoring Action to be Performed: Prior to commencement of any grading or construction activities, the Owner/Applicant shall submit evidence to RMA-Planning for review and approval, that the Resolution of Approval, for the project, has been incorporated onto the construction plans for the project/approved development.

Ongoing throughout construction and until all Conditions of Approval and/or Mitigation Measures have been complied with, the Contractor/Owner/Applicant shall provide evidence of compliance with Conditions of Approval to the Responsible Land Use Department as specified in the "Condition of Approval Implementation Plan/Mitigation Monitoring Reporting Plan."

6. CC01 INDEMNIFICATION AGREEMENT

Responsible Department: County Counsel

Condition/Mitigation Monitoring Measure: The property owner agrees as a condition and in consideration of approval of this discretionary development permit that it will, pursuant to agreement and/or statutory provisions as applicable, including but not limited to Government Code Section 66474.9, defend, indemnify and hold harmless the County of Monterey or its agents, officers and employees from any claim, action or proceeding against the County or its agents, officers or employees to attack, set aside, void or annul this approval, which action is brought within the time period provided for under law, including but not limited to, Government Code Section 66499.37, as applicable. The property owner will reimburse the County for any court costs and attorney's fees which the County may be required by a court to pay as a result of such action. The County may, at its sole discretion, participate in the defense of such action; but such participation shall not relieve applicant of his/her/its obligations under this condition. An agreement to this effect shall be recorded upon demand of County Counsel or concurrent with the issuance of building permits, use of property, filing of the final map, recordation of the certificates of compliance whichever occurs first and as applicable. The County shall promptly notify the property owner of any such claim, action or proceeding and the County shall cooperate fully in the defense thereof. If the County fails to promptly notify the property owner of any such claim, action or proceeding or fails to cooperate fully in the defense thereof, the property owner shall not thereafter be responsible to defend, indemnify or hold the County harmless. (County Counsel)

Compliance or Monitoring Action to be Performed: Upon demand of County Counsel or concurrent with the issuance of building permits, use of the property, recording of the final/parcel map, or recordation of Certificates of Compliance, whichever occurs first and as applicable, the Owner/Applicant shall submit a signed and notarized Indemnification Agreement to the County Counsel for review and signature by the County.

Proof of recordation of the Indemnification Agreement, as outlined, shall be submitted to the Office of County Counsel.

7. PD014(A) - LIGHTING - EXTERIOR LIGHTING PLAN

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: All exterior lighting shall be unobtrusive, down-lit, harmonious with the local area, and constructed or located so that only the intended area is illuminated and off-site glare is fully controlled. The lighting source shall be shielded and recessed into the fixture. The applicant shall submit three (3) copies of an exterior lighting plan which shall indicate the location, type, and wattage of all light fixtures and include catalog sheets for each fixture. The lighting shall comply with the requirements of the California Energy Code set forth in California Code of Regulations Title 24 Part 6. The exterior lighting plan shall be subject to approval by the Director of RMA - Planning, prior to the issuance of building permits.
(RMA - Planning)

Compliance or Monitoring Action to be Performed: Prior to the issuance of building permits, the Owner/Applicant shall submit three copies of the lighting plans to RMA - Planning for review and approval. Approved lighting plans shall be incorporated into final building plans.

Prior to final/occupancy, the Owner/Applicant/Contractor shall submit written and photographic evidence demonstrating that the lighting has been installed according to the approved plan.

On an on-going basis, the Owner/Applicant shall ensure that the lighting is installed and maintained in accordance with the approved plan.

8. PD047 - DEMOLITION/DECONSTRUCTION (MBUAPCD RULE 439)

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: In accordance with Monterey Bay Air Resources District Rule 424, construction plans shall include "Demolition and Deconstruction" notes that incorporate the following work practice standards:
1. Sufficiently wet the structure prior to deconstruction or demolition. Continue wetting as necessary during active deconstruction or demolition and the debris reduction process;
2. Demolish the structure inward toward the building pad. Lay down roof and walls so that they fall inward and not away from the building;
3. Commencement of deconstruction or demolition activities shall be prohibited when the peak wind speed exceeds 15 miles per hour.
All Air District standards shall be enforced by the Air District.
(RMA - Planning)

Compliance or Monitoring Action to be Performed: Prior to the issuance of a demolition permit, if applicable, the Owner/Applicant/Contractor shall incorporate a "Demolition/Deconstruction" note on the demolition site plan that includes, but is not limited to, the standards set forth in this condition.

During demolition, the Owner/Applicant/Contractor shall obtain any required Air District permits and the Air District shall conduct all deconstruction or demolition inspection activities as required by the Air District.

9. PD005 - FISH & GAME FEE NEG DEC/EIR

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: Pursuant to the State Public Resources Code Section 753.5, State Fish and Game Code, and California Code of Regulations, the applicant shall pay a fee, to be collected by the County, within five (5) working days of project approval. This fee shall be paid before the Notice of Determination is filed. If the fee is not paid within five (5) working days, the project shall not be operative, vested or final until the filing fees are paid. (RMA - Planning)

Compliance or Monitoring Action to be Performed: Within five (5) working days of project approval, the Owner/Applicant shall submit a check, payable to the County of Monterey, to the Director of RMA - Planning.

If the fee is not paid within five (5) working days, the applicant shall submit a check, payable to the County of Monterey, to the Director of RMA - Planning prior to the recordation of the final/parcel map, the start of use, or the issuance of building permits or grading permits.

10. PD006 - CONDITION OF APPROVAL / MITIGATION MONITORING PLAN

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: The applicant shall enter into an agreement with the County to implement a Condition of Approval/Mitigation Monitoring and/or Reporting Plan (Agreement) in accordance with Section 21081.6 of the California Public Resources Code and Section 15097 of Title 14, Chapter 3 of the California Code of Regulations. Compliance with the fee schedule adopted by the Board of Supervisors for mitigation monitoring shall be required and payment made to the County of Monterey at the time the property owner submits the signed Agreement. The agreement shall be recorded. (RMA - Planning)

Compliance or Monitoring Action to be Performed: Within sixty (60) days after project approval or prior to the issuance of building and grading permits, whichever occurs first, the Owner/Applicant shall:

1) Enter into an agreement with the County to implement a Condition of Approval/Mitigation Monitoring Plan.

2) Fees shall be submitted at the time the property owner submits the signed Agreement.

3) Proof of recordation of the Agreement shall be submitted to RMA-Planning.

11. PW0044 - CONSTRUCTION MANAGEMENT PLAN

Responsible Department: RMA-Public Works

Condition/Mitigation Monitoring Measure: The applicant shall submit a Final Construction Management Plan (CMP) to the RMA-Planning Department and the Department of Public Works for review and approval. The CMP shall include measures to minimize traffic impacts during the construction/grading phase of the project, monitoring reports to ensure compliance and shall provide the following information: Duration of the construction, hours of operation, an estimate of the number of truck trips that will be generated, truck routes, number of construction workers, parking areas for both equipment and workers, and locations of truck staging areas. The CMP shall include a note demonstrating how soil disturbance, stockpiling of excavated materials, and transport of construction waste and soils offsite will be done in accordance with the Soil Management Plan (Monterey County File No, LIB190007) prepared for the subject property. Hauling of hazardous materials offsite shall be done by a contractor licensed, insured, and approved to transport hazardous waste, in methods approved by local, state and federal requirements, and disposed of in an approved offsite facility. Approved measures included in the CMP shall be implemented by the applicant during the Construction/grading phase of the project.

Compliance or Monitoring Action to be Performed: 1. Prior to issuance of the Grading Permit or Building Permit Owner/Applicant/ Contractor shall prepare a CMP and shall submit the CMP to the RMA-Planning Department and the Department of Public Works for review and approval.

2. Prior to the final of construction permits, the owner/applicant shall submit to RMA-Planning final monitoring reports for review and approval. the final report shall document mitigation measures that where implemented as defined in the CMP and their success.

3. On-going through construction phases Owner/Applicant/Contractor shall implement the approved measures during the construction/grading phase of the project.

12. GRADING PLAN

Responsible Department: Environmental Services

Condition/Mitigation Monitoring Measure: The applicant shall submit a grading plan incorporating the recommendations in the approved design-level geotechnical report. The grading plan shall include contour lines and cross-sections that identify the existing grade, proposed grade, and the extent of any proposed excavation and/or fill. The grading plan shall include the geotechnical inspection schedule that identifies when the inspections will be completed, who will conduct the inspection (i.e., PG, PE, and/or Special Inspector), a description of the required inspection, inspector name, and the completion date. (RMA-Environmental Services)

Compliance or Monitoring Action to be Performed: Prior to issuance of any grading or building permits, the applicant shall submit a grading plan to RMA-Environmental Services for review and approval.

13. EROSION CONTROL PLAN

Responsible Department: Environmental Services

Condition/Mitigation Monitoring Measure: The applicant shall submit an erosion control plan in conformance with the requirements of Monterey County Code Chapter 16.12. The erosion control plan shall include a construction entrance, concrete washout, stockpile area(s), material storage area(s), portable sanitation facilities and waste collection area(s), as applicable. The plan shall also include RMA-Environmental Services standard inspection notes 1, 2, & 3. (RMA-Environmental Services)

Compliance or Monitoring Action to be Performed: Prior to issuance of any grading or building permits, the applicant shall submit an erosion control plan to RMA-Environmental Services for review and approval. Standard inspection notes are available on the RMA-Environmental Services website.

14. CALIFORNIA CONSTRUCTION GENERAL PERMIT

Responsible Department: Environmental Services

Condition/Mitigation Monitoring Measure: The applicant shall submit a Stormwater Pollution Prevention Plan (SWPPP) including the Waste Discharger Identification (WDID) number, to RMA-Environmental Services. In lieu of a Stormwater Pollution Prevention Plan (SWPPP), a letter of exemption or erosivity waiver from the Central Coast Regional Water Quality Control Board may be provided. (RMA-Environmental Services)

Compliance or Monitoring Action to be Performed: Prior to issuance of any grading or building permits, the applicant shall submit a SWPPP including the WDID number certifying the project is covered under the California Construction General Permit or a letter of exemption from the Central Coast Regional Water Quality Control Board.

15. GEOTECHNICAL PLAN REVIEW

Responsible Department: Environmental Services

Condition/Mitigation Monitoring Measure: The applicant shall provide certification from the licensed practitioner that their geotechnical recommendations have been incorporated into the approved grading plan. (RMA-Environmental Services)

Compliance or Monitoring Action to be Performed: Prior to issuance of any grading or construction permits, the applicant shall provide certification from the licensed practitioner(s).

16. AS-BUILT CERTIFICATION

Responsible Department: Environmental Services

Condition/Mitigation Monitoring Measure: Prior to final inspection, the applicant shall provide a letter from a licensed engineer certifying that all development has been constructed in accordance with the recommendations in the approved design-level geotechnical report and the approved grading plan. (RMA- Environmental Services)

Compliance or Monitoring Action to be Performed: Prior to final inspection, the owner/applicant shall provide RMA-Environmental Services a letter from a licensed practitioner.

17. MM01 - TRIBAL CULTURAL MONITOR

Responsible Department: RMA-Planning

Condition/Mitigation Monitoring Measure: In order to ensure that Tribal Cultural Resources incur less than significant impacts, an OCEN-approved Monitor or other appropriately NAHC-recognized representative shall be onsite during project-related grading and excavation of the described substation to identify findings with tribal cultural significance.

Compliance or Monitoring Action to be Performed:

Mitigation Measure Action 1a:
Prior to issuance of a construction permit for grading and/building, Applicant/Owner shall submit evidence to the satisfaction of the Chief of RMA-Planning that an OCEN-approved onsite Cultural Resources Monitor or other appropriately NAHC-recognized representative has been retained to monitor the appropriate construction activities. This Monitor shall be retained for the duration of any project-related grading or excavation up to a depth of 15 feet.

Mitigation Measure Action 1b:
Prior to issuance of construction permit for grading and/or building, include a note on all grading, demolition and construction plans. The note shall state: “Stop work within 50 meters (165 feet) of uncovered resource(s) and immediately contact Monterey County RMA-Planning.” Prior to resuming any further project-related ground disturbance, Owner/Applicant shall coordinate with the project planner and the Monitor to determine a strategy for either return to the OCEN tribe or reburial.

Mitigation Measure 1c:
Prior to final of a construction permit for grading and/or building, the OCEN Monitor or other appropriately NAHC-recognized representative shall submit a letter to the RMA Chief of Planning, confirming participation in the monitoring and provide a summary of cultural finds or no finds, as applicable.

VISTRA ENERGY

LINE TABLE			
LINE	LENGTH	LINE	LENGTH
L1	60.22	L19	20.33
L2	5.57	L20	15.05
L3	9.73	L21	22.00
L4	30.89	L22	4.65
L5	10.48	L23	17.30
L6	6.75	L24	2.00
L7	60.22	L25	18.00
L8	42.20	L26	2.70
L9	22.73	L27	17.35
L10	0.60	L28	12.00
L11	39.77	L29	45.47
L12	16.40	L30	12.00
L13	39.71	L31	45.47
L14	10.35	L32	22.30
L15	22.73	L33	10.30
L16	5.45	L34	22.30
L17	20.56	L35	10.30
L18	14.75		

BUILDING TABLE		
BUILDING	AREA (SQ. FT.)	HEIGHT (FT.)
A	1178.11	11.15
B	3879.43	26.00
C	2377.36	15.30
D	4075.20	21.00
E	10017.64	25.70
F	3044.04	17.40
G	1111.13	20.60
H	1118.08	20.60
I	229.69	11.20
J	545.70	12.35
K	6043.78	17.70
L	4332.35	21.49
M	775.65	19.10
N	2889.25	18.70
O	96410.73	78.62
P	8254.93	19.60
Q	304.59	12.36
VFD Building	742.00	13.38

Property Data Summary

Parcel Size: 137.5 acres or 5,989,500 sq ft
General Plan Land Use Designation: North Monterey County Coastal Land Use Plan
Heavy Industrial Coastal

Zoning Designation: HI (CZ)
Existing Lot Coverage: 7.32% 438,389 ft² existing buildings/5,989,500 ft² parcel
Grading: None, 46,250 ft² asphalt replacement (shown on grading plan)
Tree Removal: None
Impervious Coverage:
1) Area Covered by structures – 438,389 ft²
2) Area Covered by impervious surfaces – 1,497,375 ft²

Permanent Parking: (No additional parking for this project)
Regular Space: 150
Handicapped Spaces: 9
Total Parking Spaces: 159

Battery Energy Storage System:
200 Power Control Systems (approximate)
200,000 Battery modules (approximate)

DETAIL A

DETAIL B

PARCEL I

PARCEL II

PARCEL V

PARCEL VI

PARCEL VII-1

PARCEL VII-2

PARCEL VIII

PARCEL IX

Battery Energy Storage

Power Conversion System

Substation

Temporary Parking and Trailer Area

VFD Building

APPURTENANT EASEMENT

SEE DETAIL A

SEE DETAIL B

SEE SHEET 3

133-242-008 MONTEREY BAY AQUARIUM RESEARCH

133-241-018 MOSS LANDING HARBOR DISTRICT

133-241-017 MOSS LANDING HARBOR DISTRICT

133-242-010 ROBERTS TONY

133-241-011 SAN JOSE STATE UNIVERSITY FOUNDATION

133-172-013 REVX-173 LLC

APN UNKNOWN OWNER UNKNOWN

FLOOD ZONE X (SHADED)

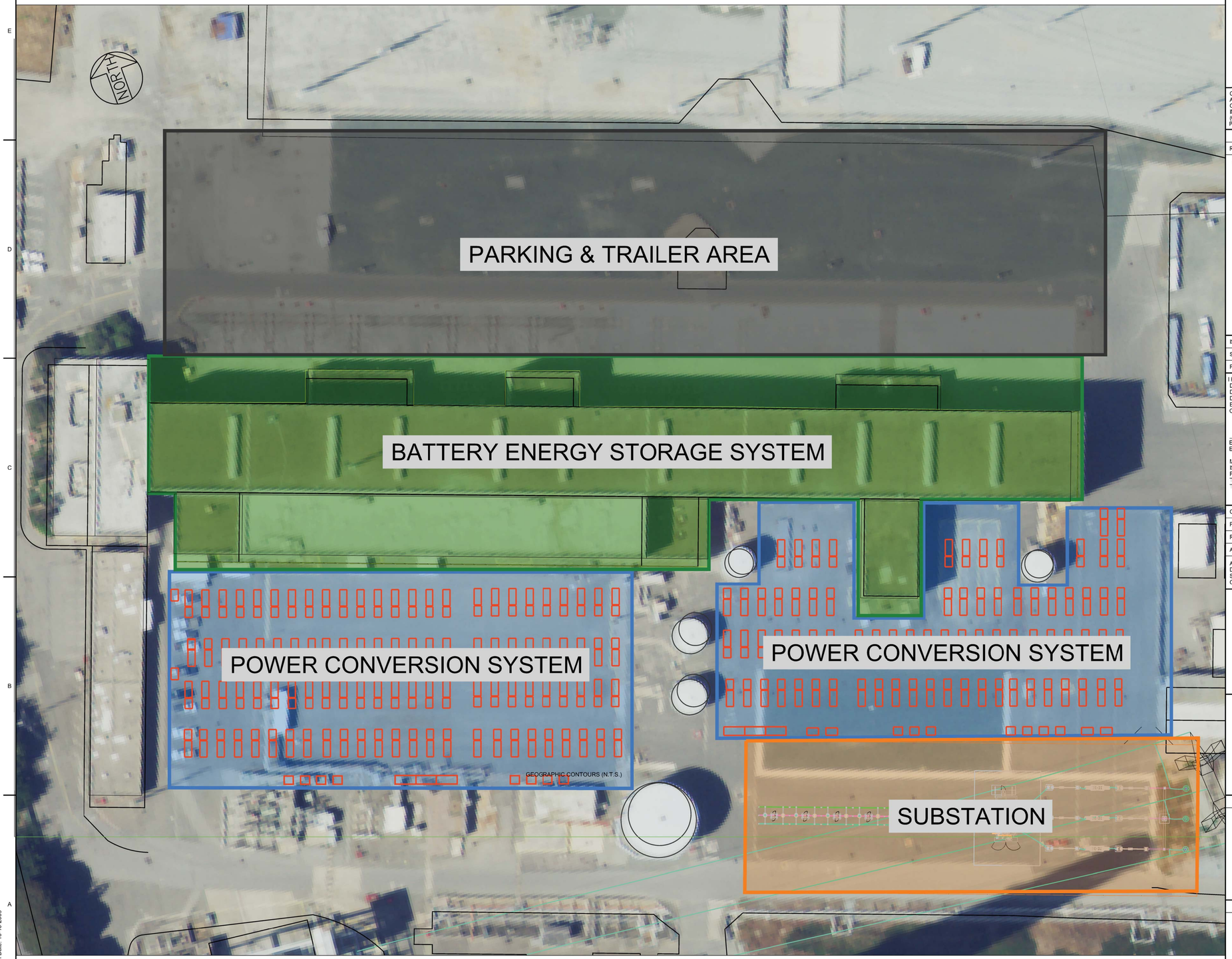
FLOOD ZONE X

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft

NORTH



HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	08-24-2018	ISSUE FOR PERMITTING

ISSUE PURPOSE: PERMITTING

SPECIFICATION:

PROJECT NO.: 13695-005

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REVIEWED BY: B. CLEARY

APPROVED BY: M. HACK

Sargent & Lundy Engineers, Ltd.

VISTRA ENERGY

PROJECT

VISTRA ENERGY

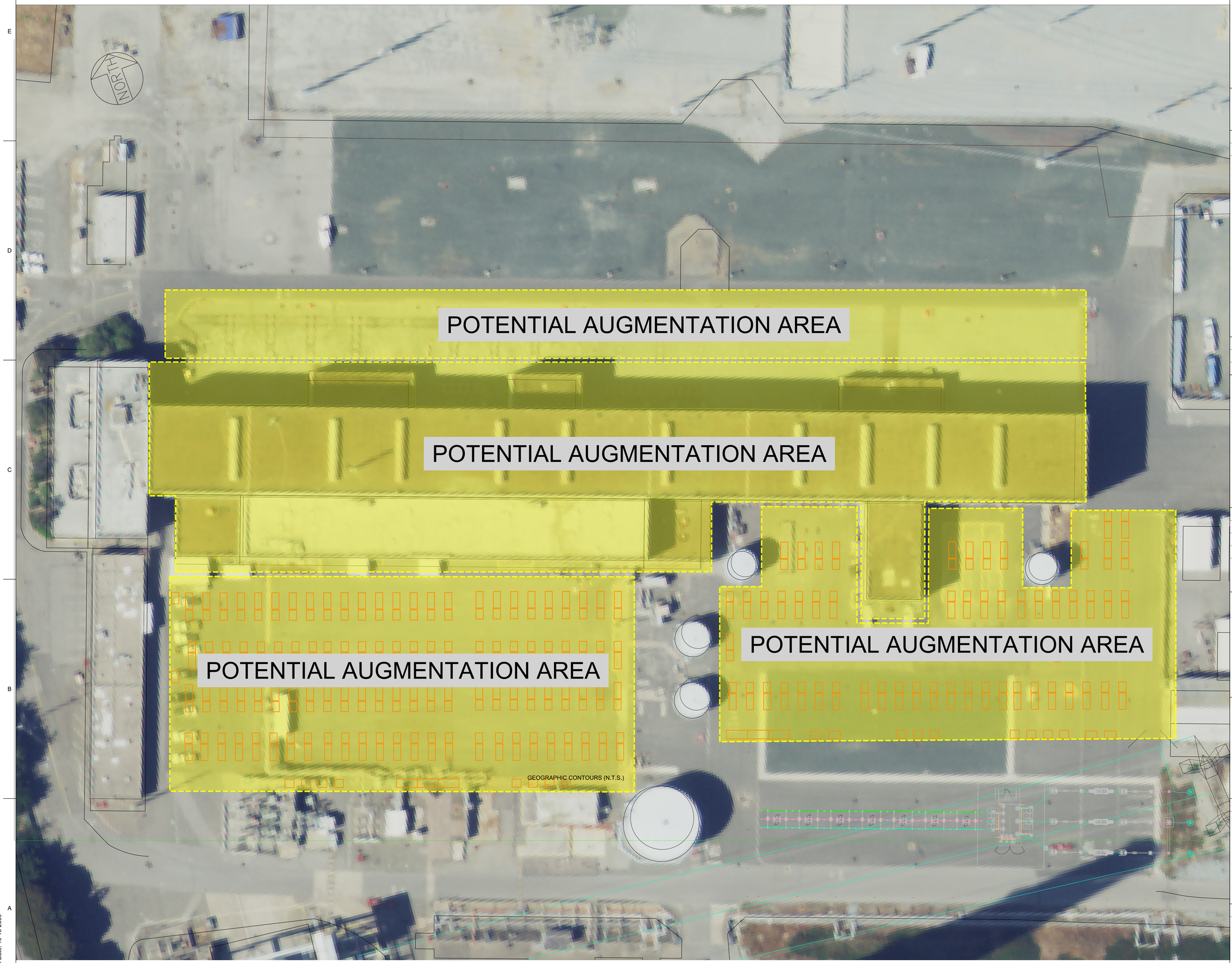
MOSS LANDING ESS FACILITY

DRAWING TITLE

ESS FACILITY
GENERAL LAYOUT
300MW/1200MWH SITE PLAN

DRAWING NUMBER	REVISION
VST-P5-0105	A

SHEET 1 OF 1



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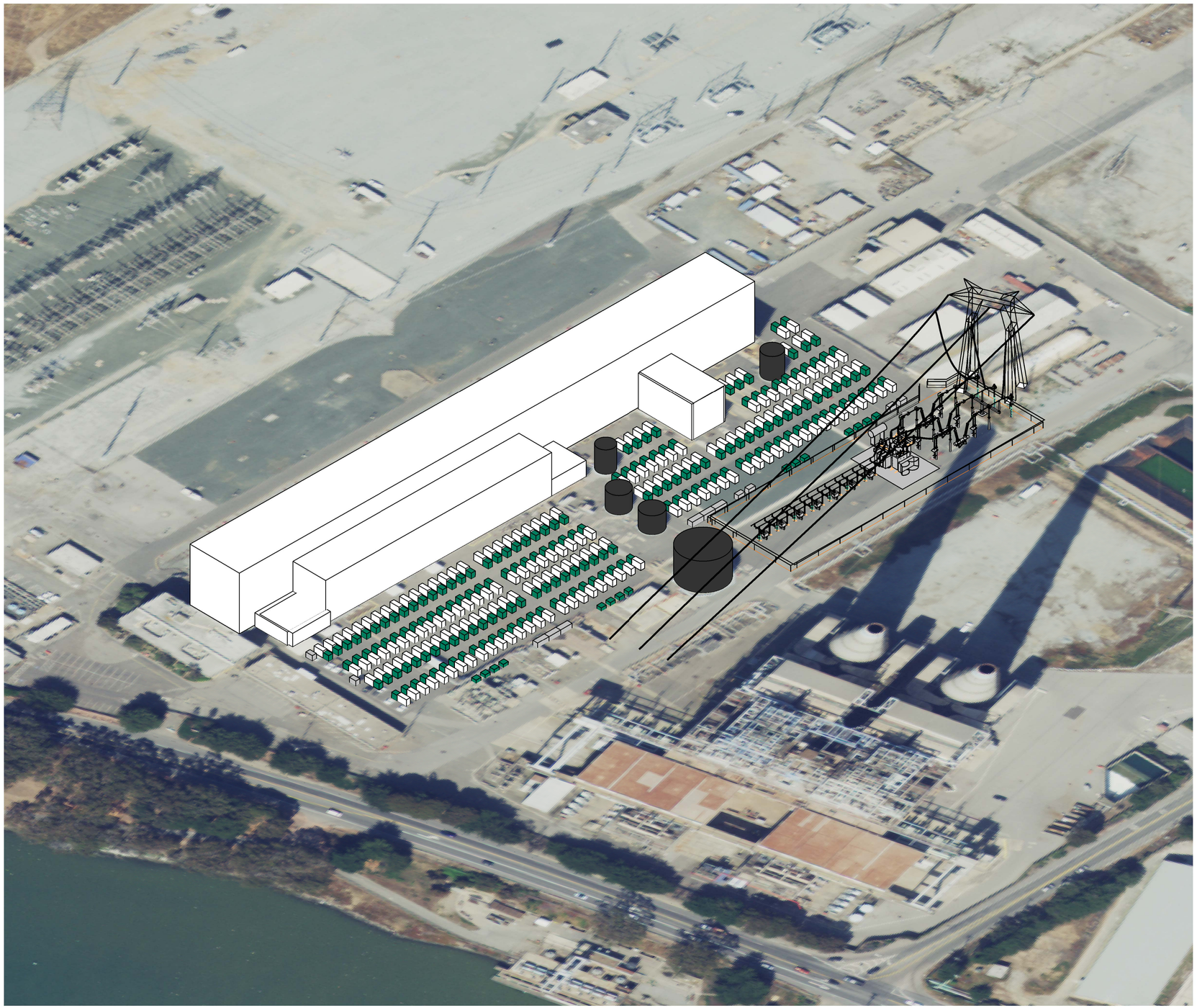
MOSS LANDING BESS FACILITY

DRAWING TITLE

BESS FACILITY
GENERAL LAYOUT- AUGMENTATION
300MW/1200MWH SITE PLAN

DRAWING NUMBER	REVISION
VST-P5-0105A	A

SHEET 1 OF 1



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MOSS LANDING BESS FACILITY

DRAWING TITLE

BESS FACILITY
ISOMETRIC VIEW
300MW/1200MWH SITE PLAN

DRAWING NUMBER	REVISION
VST-P12-0120	A
SHEET 1 OF 1	

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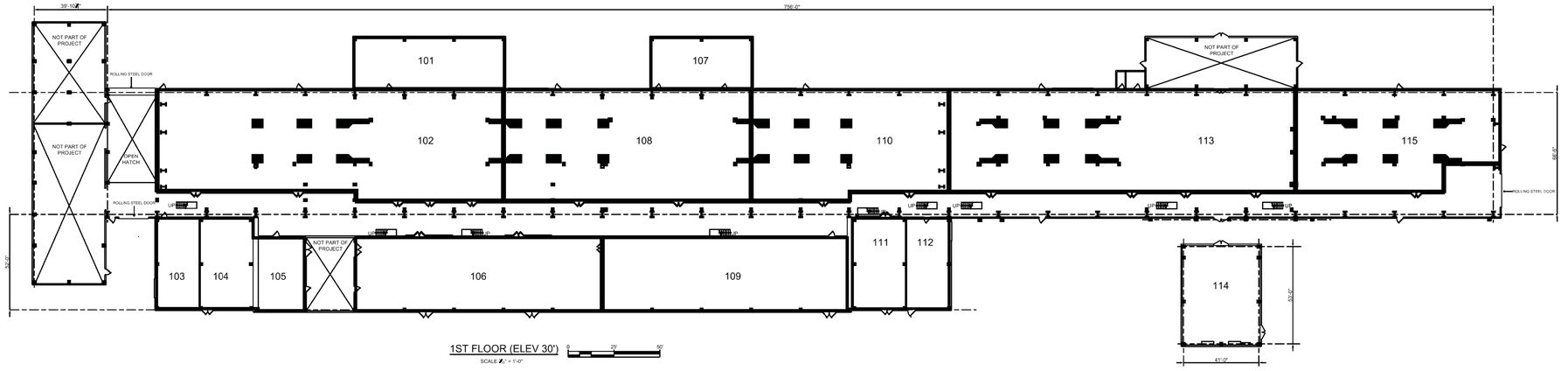
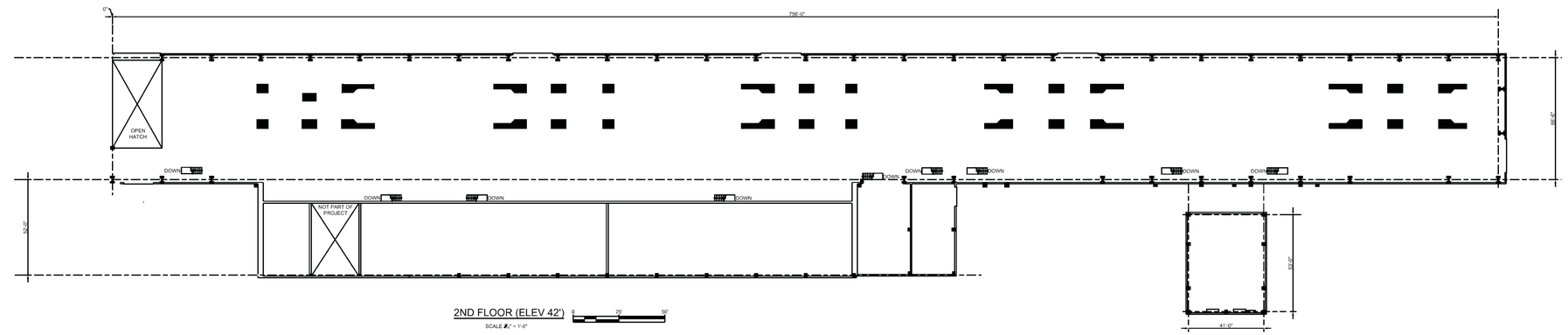
Revision 10, Revision Date: 10-16-2009



1ST FLOOR (ELEV 30')
SCALE 1/32" = 1'-0"
0 25' 50'



2ND FLOOR (ELEV 42')
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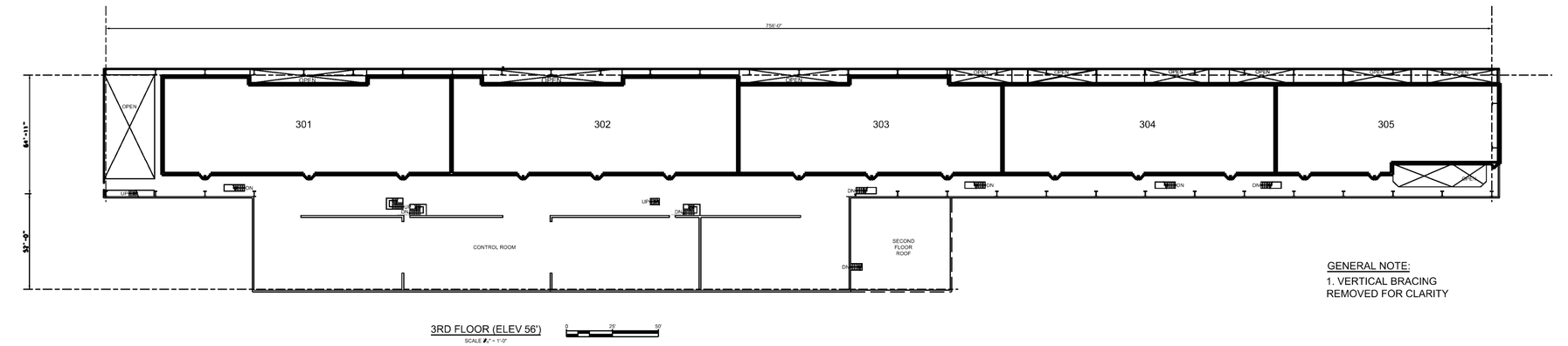

3RD FLOOR (ELEV 56')
SCALE 1/32" = 1'-0"
0 25' 50'

GENERAL NOTE:
1. VERTICAL BRACING REMOVED FOR CLARITY

HOLD INFORMATION

NO.	DESCRIPTION
NO	

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APPROVED BY: M. HACK

Sargent & Lundy Engineers, Ltd.

VISTRA ENERGY

PROJECT

VISTRA ENERGY

MOSS LANDING BESS FACILITY

DRAWING TITLE

MOSS LANDING BESS FACILITY
GENERAL LAYOUT
1ST, 2ND AND 3RD FLOOR

DRAWING NUMBER	REVISION
VST-P7-0107	A
SHEET 1 OF 1	

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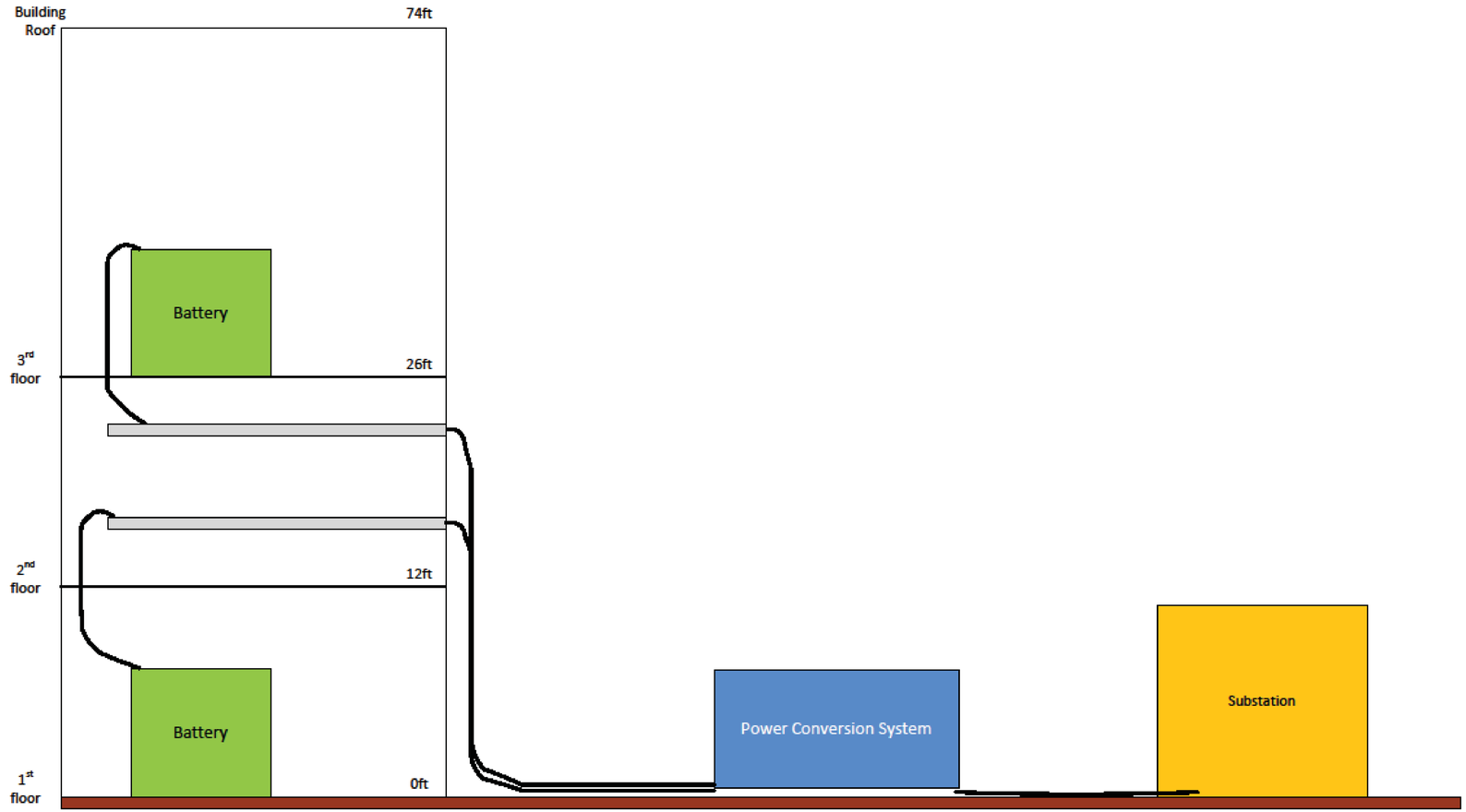
Revision 10, Revision Date: 10-16-2009



Looking East

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RELEASE INFORMATION

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ISSUE PURPOSE: PERMITTING

SPECIFICATION:

PROJECT NO.: 13695

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VISTRA ENERGY

PROJECT

VISTRA ENERGY

MOSS LANDING ESS FACILITY

DRAWING TITLE

ESS FACILITY
GENERAL LAYOUT
MOSS LANDING BESS CROSS SECTION

DRAWING NUMBER	REVISION
VST-P9-0109	A

SHEET 1 OF 1

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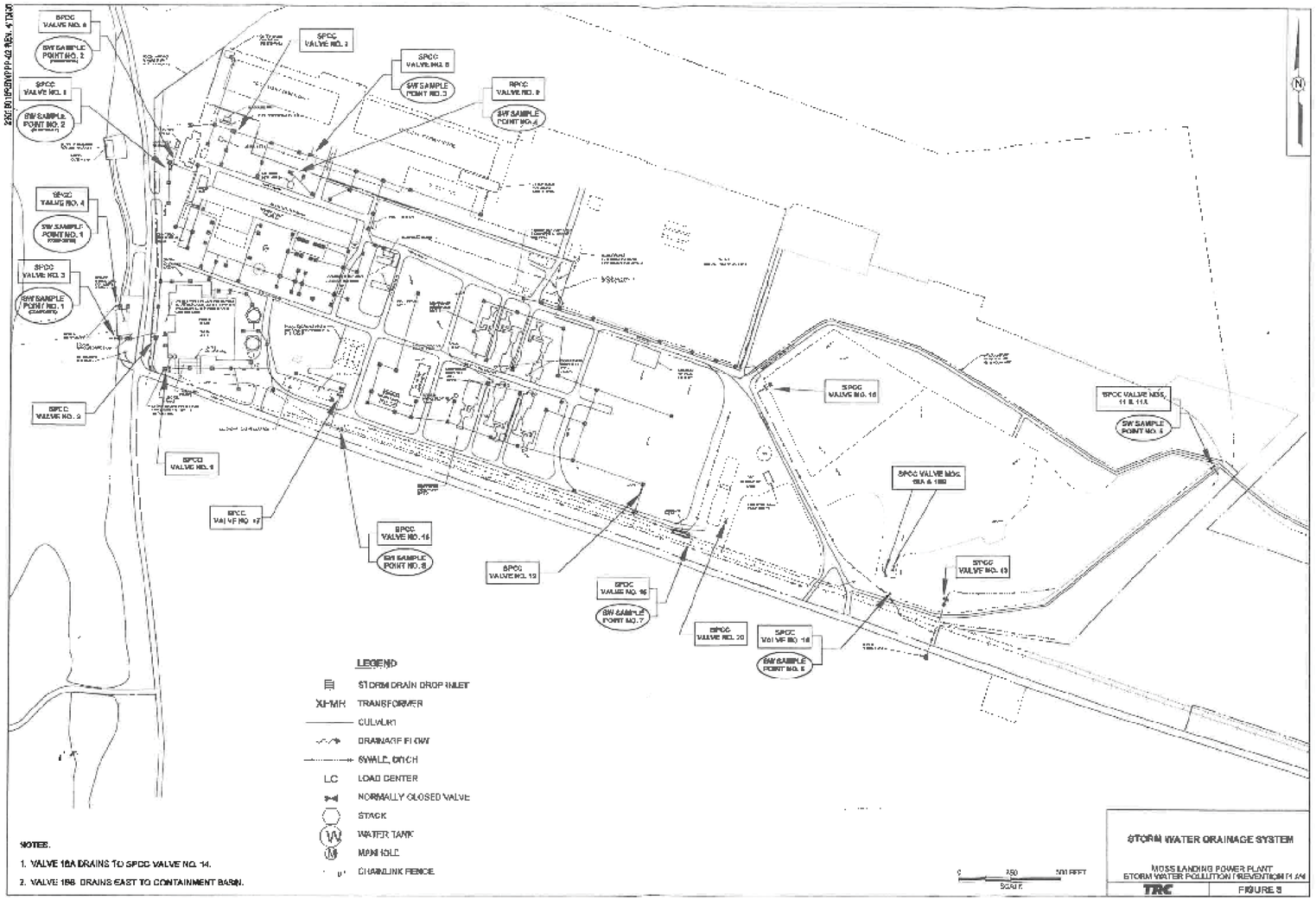
Revision 10, Revision Date: 10-16-2009



1. Storm water management will comply with existing SWPP & SPCC.
2. Storm water management will maintain the existing sheet flow for the area.
3. The quantity of existing storm drains will be maintained.

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	09-04-2018	ISSUED FOR PERMITTING

ISSUE PURPOSE: PERMITTING

SPECIFICATION:

PROJECT NO.: 13695

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ENTER NAME.

ENTER NAME
ENTER DATE

MY LICENSE RENEWAL DATE IS: ENTER DATE
PAGES OR SHEETS COVERED BY THIS SEAL:
THIS DOCUMENT ONLY.

CERTIFICATE OF AUTHORIZATION

CAD FILE NAME: VST-P10-0110.dgn

PREPARED BY: J. TORGERSON

REVIEWED BY: B. CLEARY

APPROVED BY: M. HACK

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VISTRA ENERGY

PROJECT

VISTRA ENERGY

MOSS LANDING BESS FACILITY

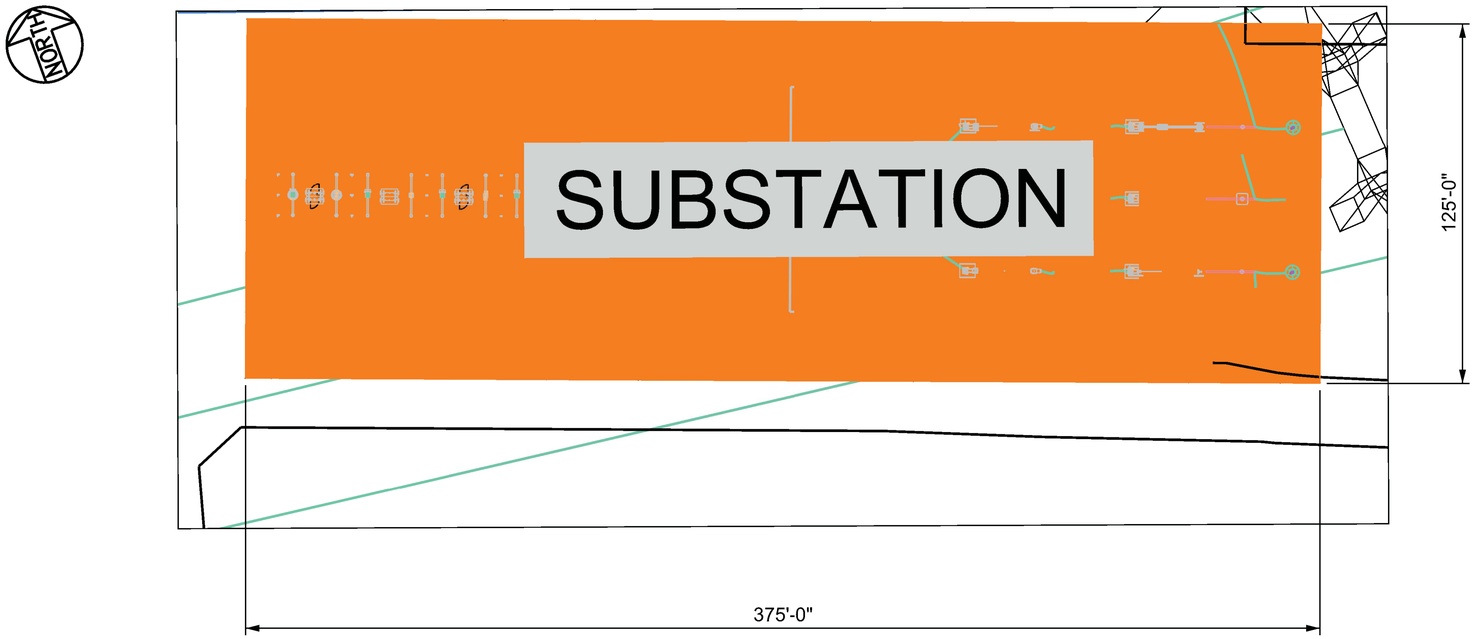
DRAWING TITLE

BESS FACILITY
GENERAL LAYOUT
STORM WATER CONTROL PLAN

DRAWING NUMBER	REVISION
VST-P10-0110	A

SHEET 1 OF 1

1. Surface Area of 125 feet by 370 feet will be disturbed to support the construction of the substation.
2. The Cubic yards of material removed would include the existing asphalt in the area and the removal of soil to grade the area. Soil will also be removed for the installation of foundations. The total material removed would include 770 CY of asphalt and 3750 CY of soil will be disposed of offsite per the April 6th, 2018 Soil Management Plan.
3. Final Grading Plan will be reviewed by final Geotech Engineer.
4. Substation layout subject to change during Detailed Design.



HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTORS/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	09-04-2018	ISSUED FOR PERMITTING

ISSUE PURPOSE: PERMITTING

SPECIFICATION:

PROJECT NO.: 13695-005

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ENTER NAME
ENTER DATE

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CERTIFICATE OF AUTHORIZATION

CAD FILE NAME: VST-P11-0111.dgn

PREPARED BY: J. TORGERSON

REVIEWED BY: B. CLEARY

APPROVED BY: M. HACK

Sargent & Lundy Engineers, Ltd.

VISTRA ENERGY

PROJECT

VISTRA ENERGY

MOSS LANDING BESS FACILITY

DRAWING TITLE

BESS FACILITY
GENERAL LAYOUT
MOSS LANDING PRELIMINARY GRADING PLAN

DRAWING NUMBER	REVISION
VST-P11-0111	A

SHEET 1 OF 1

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Revision 10, Revision Date: 10-16-2009

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MOSS LANDING POWER PLANT SITE MASTER PLAN

Amendment: 2018

Moss Landing Power Plant Site Master Plan Amendment 2018

1. The following change is made to the master plan.

Insert in Section 7.I Approved Projects

D. Projects Approved 2000-2017

1.	Duke Energy Sign	PLN: 980620 (NEW)
2.	Fuel Oil Tank Farm Demolition	PLN: 990233
3.	Amendment to Fuel Oil Tank Farm Demolition permit	PLN: 020098 (NEW)
4.	Replacement Generation	CEC ORDER NO. 00-1025-24
5.	Unit 6 & 7 Nox	PLN: 990145 (NEW)
6.	Energy Management Center	PLN: 000011
7.	Energy Management Center Change Trailer	PLN: 010492 (NEW)
8.	Relocate the Oily Water Separator System	PLN: 000011
9.	Relocate the Existing Marine Mammal Center	PLN: 000596
10.	Additional Warehouse Buildings	PLN: 020116
11.	Emergency Permit for Tank Farm Fire	PLN: 030328
12.	Unit 1-5 Demolition	PLN: 030520
13.	Unit 1-5 Transformer Rock Blotter Soil Removal	PLN: 140193 (NEW)
14.	VFD Building	PLN: 160043 (NEW)

2. The following change is made to the master plan.

Amend and Restate

Section 7.II - Projects Currently Under Consideration for Approval

1. Battery Energy Storage System (BESS)

Existing Conditions

The battery energy storage system (BESS) facility under review (PLN 180394) will be in the location of the old Units 1-5, including inside of the existing turbine building.

Project Description

The BESS facility will consist of lithium-ion batteries connected to a power conversion system consisting of inverters and 34.5kV transformers connected to a new 500kV substation. The entire facility will be located within the footprint of the old Units 1-5 Demolition site.

Potential Impacts

None

Mitigation

None

Location

Within the Unit 1-5 turbine building and demolished Units 1-5.

Schedule

2018 - 2020

3. The following change is made to the master plan.

Amend and Restate:

Section 7.III - Potential Future Projects

1. Battery Energy Storage System (BESS)

Existing Conditions

The Moss Landing Power Plant will be reviewed for future opportunities for battery energy storage systems.

Project Description

A battery energy storage system facility will consist of lithium-ion or similar batteries connected to a power conversion system consisting of inverters and transformers connected to a high voltage substation.

Potential Impacts

None

Mitigation

None

Location

Within the Moss Landing Power Plant Site.

Schedule

2019-2025

MOSS LANDING POWER PLANT SITE MASTER PLAN

Amendment: May 2000

TABLE OF CONTENTS

FIGURES

APPENDICES

1. INTRODUCTION

The California Coastal Act of 1976 established a long-term goal of delegating responsibility for Coastal Zone management to the local governments. This goal was to be accomplished through the preparation of a Local Coastal Program (LCP) by each local government for that portion of the coastal zone within its jurisdiction.

In June 1982, the California Coastal Commission certified Monterey County's North County Land Use Plan (LUP) as part of the County's Local Coastal Program. Monterey County subsequently adopted its Coastal Implementation Plan (CIP) in January 1988 and was granted Coastal Development authority in February 1989.

"The Energy Facilities and Industrial Development" policies of the LUP and "Regulations for Development in the North County Land Use Plan Area" of the CIP require the preparation of a master plan by major industrial activities within the North County area. Those specifically identified in the CIP are the Moss Landing Power Plant site and the National Refractories Plant located at the Moss Landing Harbor on Monterey Bay (see Figure 1). This master plan is submitted to provide the County with an indication of long-range development plans at the Moss Landing Power Plant site.

The Moss Landing Power Plant site consists of two operations: 1) the power plant and facilities related to the generation of electricity, and 2) the electric transmission operations center comprised of substation switchyards, the Electric Transmission Operation's switching center, and the Electric Transmission maintenance headquarters. Duke Energy North America (DENA) owns the generating facilities and Pacific Gas and Electric Company (PG&E) owns the property occupied by the electric transmission operations. This master plan addresses the power plant site as a whole, but separates facility descriptions and proposed projects, as appropriate, between DENA and PG&E.

The master plan contains projects that DENA and PG&E anticipate undertaking. A plot plan, showing where the majority of the projects are tentatively sited, is attached as Figure 2. Various other components discussing existing conditions at the plant and the surrounding areas are attached, and provide the background information used to assess potential impacts of the proposed projects. Because many of these projects are in the conceptual stages, the impacts discussed are general. Specific project details will be provided at the time of application for those projects requiring further review by the County.

The extent of development identified in this plan reflects DENA and PG&E's best judgment at this time regarding improvements and other projects. The plan does not addresses projects that are required as a result of new or revised federal, state or local mandates, as well as other non-required projects. Minor modifications and maintenance are ongoing to assure operating goals are met. DENA and PG&E set a high priority for the safety of their staff, the community and the protection of the environment, while maintaining the reliable and efficient operation of the power plant and substation.

VICINITY MAP

MOSS LANDING POWER PLANT MASTER PLAN

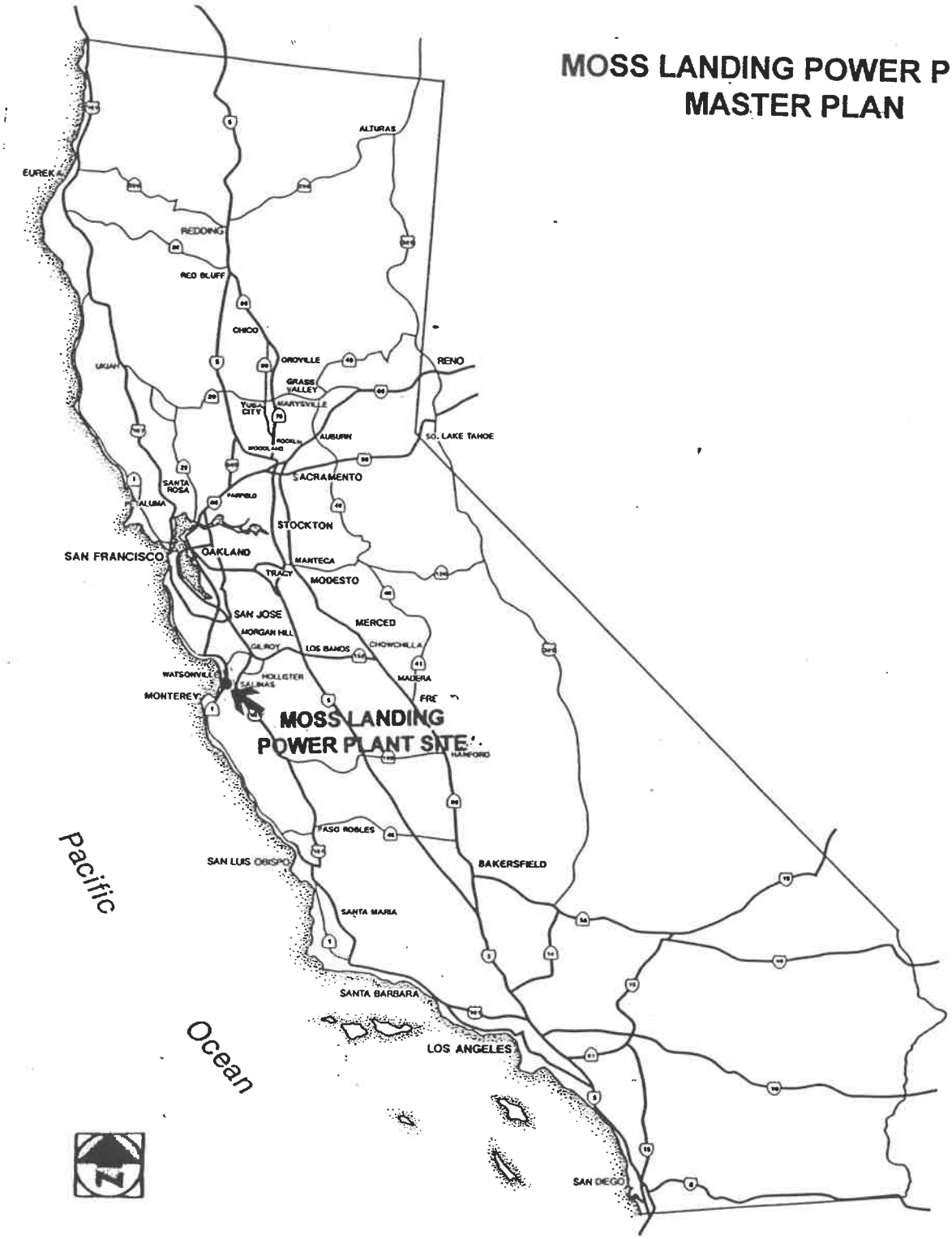
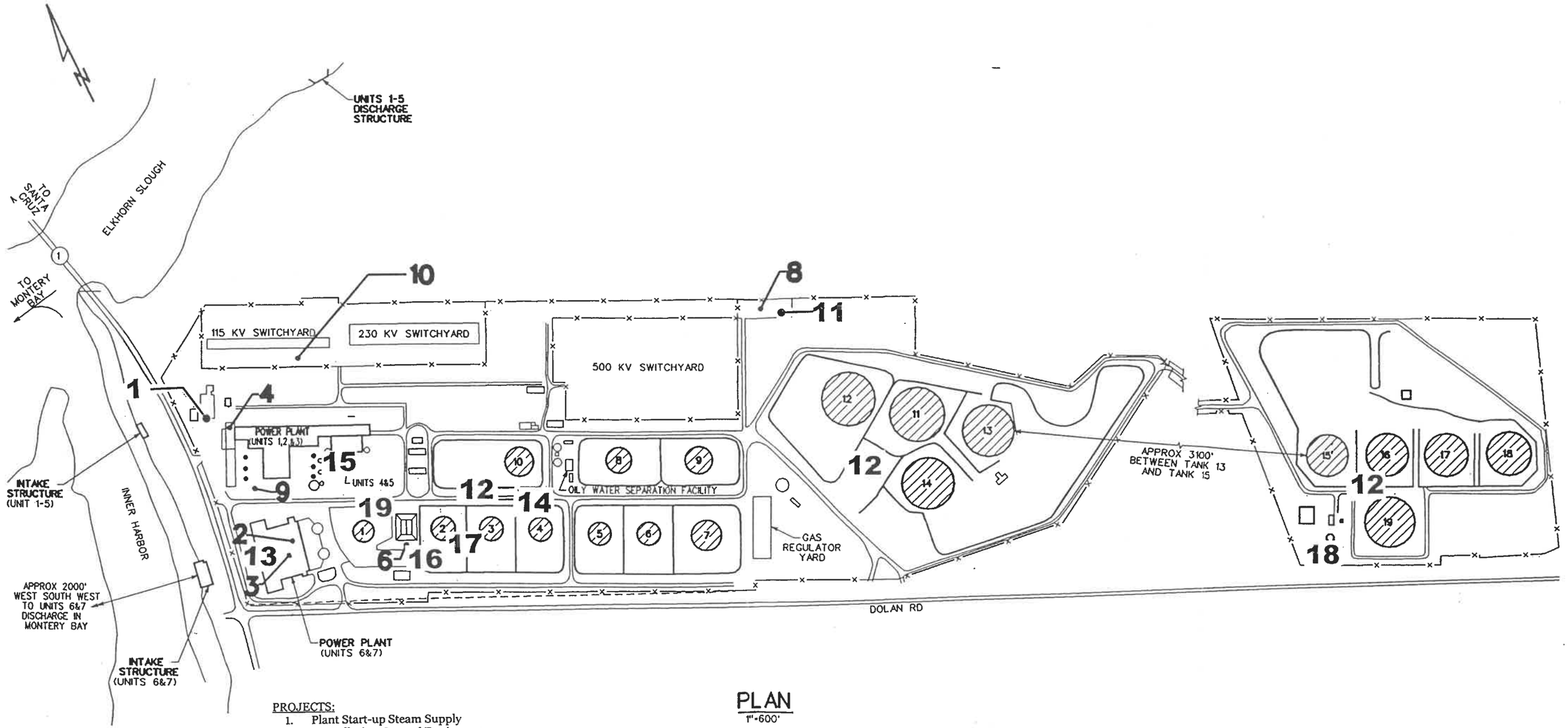


FIGURE 1



PLAN
1"=600'

PROJECTS:

1. Plant Start-up Steam Supply
2. Air Pollution Control Equipment
3. Unit 6&7 Grade 60 Offices Control Room Remodel
4. Remodel chemistry Laboratory
5. Harbor/Slough Erosion and Access Protection
6. Install Additional Groundwater Monitoring Wells
7. Remodel Plant Restrooms (ADA)
8. Transmission System Maintenance & Construction (M&C) Facility
9. Erect Protective Roof for Standby Feedpump LCI
10. Installation of 115 kv Switchyard Equipment & Control Building
11. Transmission System Maintenance and Construction Facility Fueling Facility
12. Fuel Oil Tank Demolition
13. Replace Water Make-up System
14. Replacement Generation
15. Unit 1-5 Demolition
16. Energy Management Center
17. Relocate the Oily Water Separator System
18. Relocate the Marine Mammal Center
19. Replace Hazardous Waste Surface Impoundments with an Above Ground Tank System

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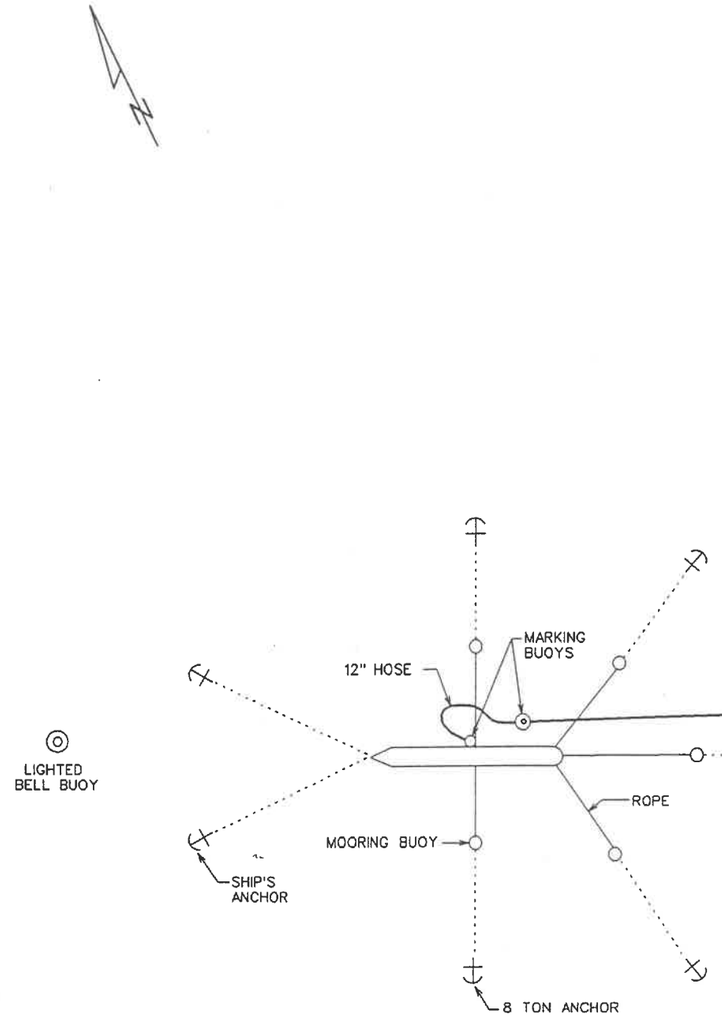
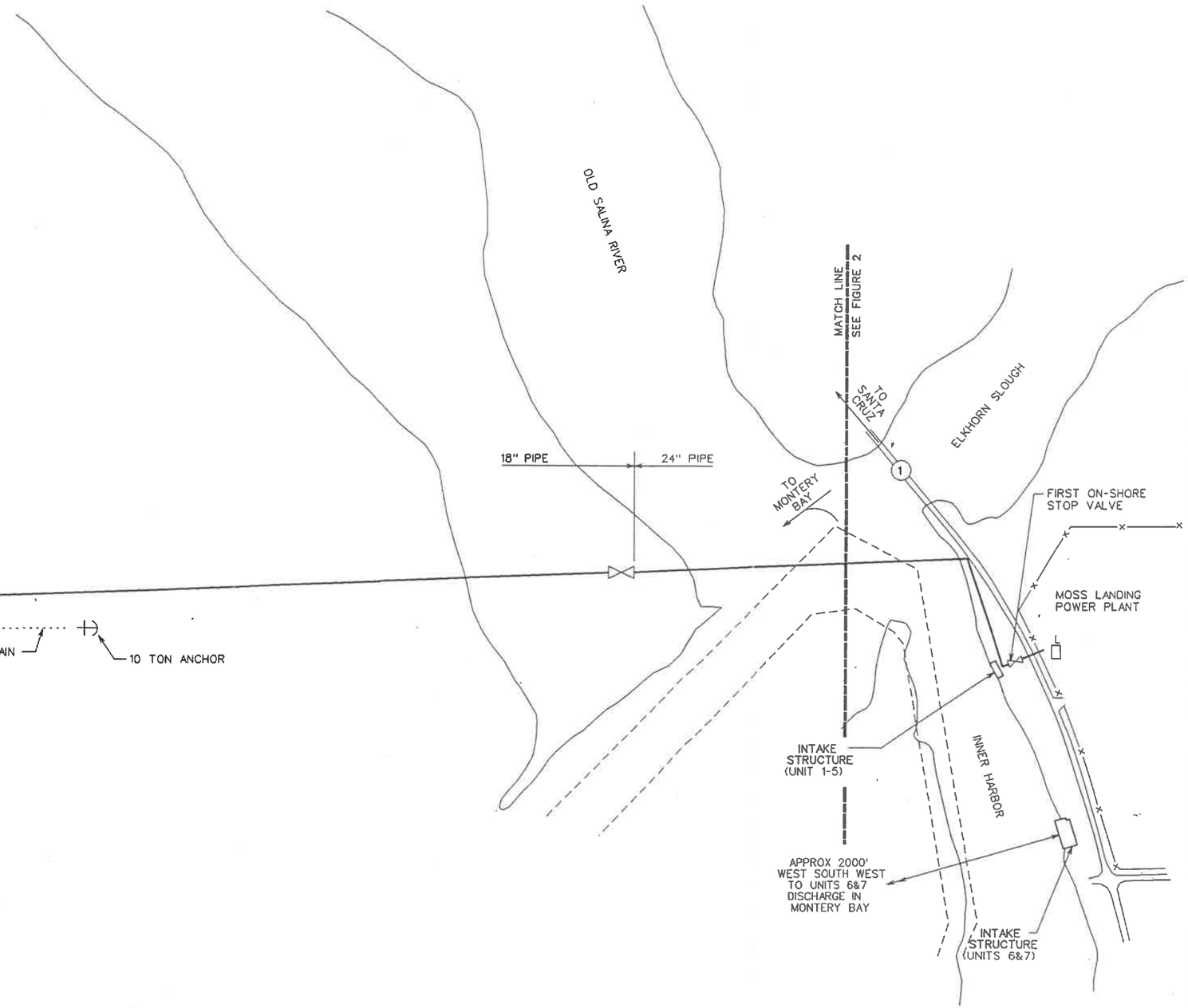
PROPOSED PROJECTS
MASTER PLAN 1994-2003
MOSS LANDING POWER PLANT SITE
MOSS LANDING, CALIFORNIA
DUKE ENERGY NORTH AMERICA
PACIFIC GAS & ELECTRIC COMPANY

PG&E

FIGURE 2





MOORING FACILITY AND
OFF-SHORE PIPELINE
MOSS LANDING POWER PLANT SITE
ELKHORN SLOUGH
MOSS LANDING, CALIFORNIA
Duke Energy Power Services

FIGURE 3

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2. MOSS LANDING POWER PLANT

2a. Plant History

Moss Landing Power Plant (MLPP) is a steam-electric generating plant. The plant began generating electricity in May 1950, with three units in commercial service. In 1952, Units 4 and 5 were added. In 1968, the two largest generators, Units 6 and 7 were completed. The plant's seven steam turbine units had a net capacity of 2,060 megawatts. In January 1995, Units 1-5 were retired. Currently, Unit 6 and 7 are operating and are capable of supplying 1,478 net megawatts. On July 1, 1998, Duke Energy North America purchased Moss Landing Power plant from PG&E. The transmission substation switchyards, the Electric Transmission Operation's switching center and the Electric Transmission maintenance headquarters on the MLPP site are still owned by PG&E.

2b. Current Operations at Moss Landing Power Plant

The power plant is manned 24 hours a day, seven days a week. Approximately 13 Duke Energy North America (DENA) employees and 96 PG&E employees (71 work under contract for DENA and 25 work at the PG&E substation) are currently assigned to the site. Under California State Law AB1890, PG&E must provide Operations and Maintenance personnel to DENA until June 2001. Starting July 1, 2001, DENA will be responsible for providing operation and maintenance personnel. Significant increase or decrease in permanent personnel is not anticipated. Additional personnel are brought on board as needed for projects and for on-going maintenance at the plant. Access to the plant for employees and vehicles used to support operations is through the main entrance on Dolan Road. The entrance on Highway 1 is only utilized for emergencies and exiting purposes at specific times. A third entrance approximately one-half mile east of Highway 1, on Dolan Road, is used exclusively for contractors during peak work periods.

Units 6 and 7 are the most efficient fossil fuel power generating units in California and are run when market conditions are favorable or when needed for transmission system reliability. The primary components of the plant are its steam generators, turbines, generators, condensers, circulating water systems, switchyards, transmission facilities and fuel storage facilities. The electric generation process begins when natural gas is burned in boilers to create steam. The steam then drives the turbines, which turns the generators that generate electricity. The electricity from the generator is stepped up through a transformer, which brings the power to PG&E's switchyard. PG&E transmits the power out of its Moss Landing switchyard on a series of 115 kV, 230 kV and 500 kV transmission systems. Once the power is transmitted into the PG&E service territory, the power is then stepped-down through various substations on the PG&E system and distributed to customers

Both Units 6 and 7's steam generators produce 5,100,000 lb./hr of steam at 3,830 psig, and 1,005 degrees Fahrenheit temperature. The steam produced operates turbines in each of the units, which drive hydrogen cooled generators and provide the cumulative total of 1,478 net megawatts of production capacity.

Gas is supplied to the plant via two gas transmission pipelines (20 in. dia. and 24 in. dia.) from PG&E's gas distribution station at Hollister, California. Units 6 and 7 each consume approximately 6.5 million cubic feet of gas per hour at full capacity.

In February 1996, Moss Landing Power Plant (MLPP) stopped using fuel oil as a back up fuel. The equipment used to deliver and supply the fuel oil has been laid up. The fuel oil transfer line, which extends into Monterey Bay, and the tanker mooring facility are in caretaker status with the United States Coast Guard, California State Lands Commission, California Department of Fish and Game, California State Fire Marshall, United States Department of Transportation Research and Special Programs Administration, United States Environment Protection Agency and the Coastal Commission.

The plant requires both fresh water and seawater for operation. Water for domestic uses, i.e. drinking and sanitary systems, is drawn from wells on the plant property. Seawater is pumped from the Harbor into the plant and used for plant operations.

The seawater is used primarily in the plant cooling system to condense the steam vapor back to liquid after it has passed through the turbine generator. To cool the steam, the seawater is pumped through tubing in a condenser, never contacting the steam/water in the turbine cycles. This condensed high purity water is pumped back into the boiler in a continuous cycle. The seawater is then cycled back into the ocean.

The plant has two cooling water intake structures on the southeast shore of the harbor with a discharge to Elkhorn Slough north of the plant for Units 1-5 and the ocean west of the plant for Units 6-7. Dredging of the intake and discharge structures is performed on an as needed basis as part of routine maintenance. The discharge quality of the cooling water system is regulated by the specifications of the National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Water Quality Control Board Central Coast Region, (RWQCB).

Seawater from the Units 6-7 discharge is distilled into high purity water for makeup water used in the steam cycle. The steam generation system is a closed system that recirculates the high purity water for steam production. The desalination process is performed using two on-site seawater vapor compression evaporator units. These units are capable of producing approximately 145 gallons/minute each. Intermittent use of the vapor compression evaporators is required to replace high purity water losses during normal operation of the plant.

After the power is generated it is transmitted into the 500 kV switchyard, PG&E uses transformers in the switchyard to move power to the 230 kV and 115 kV switchyards for distribution into the PG&E grid system. Eight transmission lines of varying voltages distribute the power to the local community and service areas.

2c. The Plant as Part of Duke Energy Corporation

Duke Energy Corporation is a global energy company headquartered in North Carolina. Duke Energy companies operate nuclear, fossil-fueled, hydroelectric and other renewable power generation facilities, provide electric service to approximately 2 million customers, operate pipelines that deliver 12 percent of the natural gas consumed in the United States and are leading marketers of electricity, natural gas and natural gas liquids. Globally, the companies develop, own and operate energy facilities and provide engineering, management, operating, and environmental services.

Duke Energy North America (DENA) is the domestic power developer and unregulated electric generation operator for Duke Energy Corporation. DENA develops, owns and operates electric generation projects for customers across the United States and Canada. Moss Landing Power Plant is part of the California operation of DENA. Morro Bay Power Plant and Oakland Power Plant are also

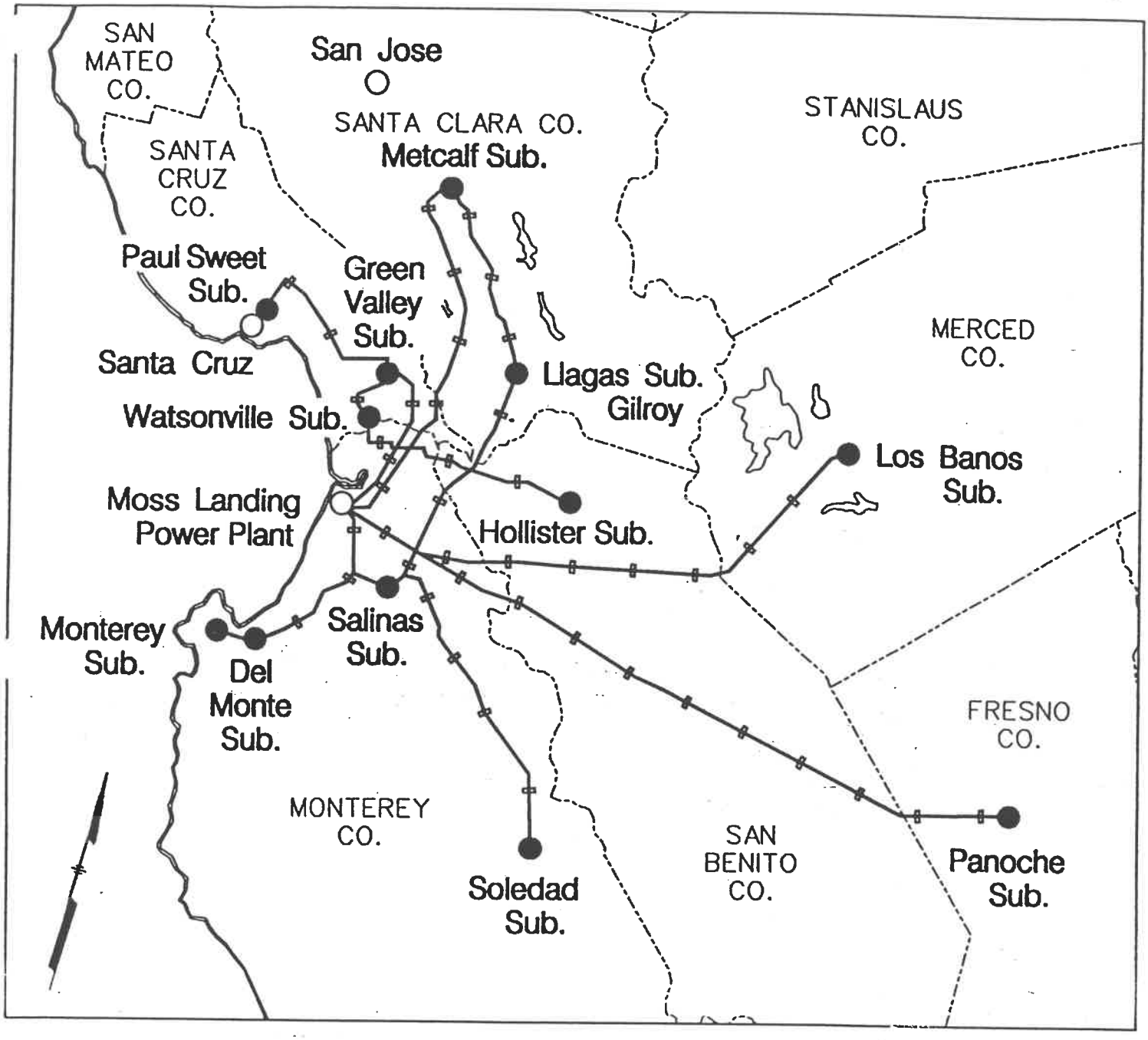
part of DENA's California operation. The three generating plants in California have a combined capacity of 2,645 megawatts.

Like other power producers in California, the electricity from MLPP is sold through the state public utility commission's power exchange (PX). The PX is a non-profit clearinghouse for the purchase and sale of electricity. Another non-profit group, overseen by the state's public utility commission, called the Independent System Operator (ISO) controls the transmission of electricity from the power plant to the customers. The ISO works with the utilities that own the power lines to ensure safe, reliable delivery of electricity to customers.

2d. Moss Landing's Electric Transmission and Operations as Part of Pacific Gas and Electric Corporation

PG&E's service territory extends as far north as Shasta County and south to San Luis Obispo County covering 48 counties and a 94,000 square mile area. This area contains two of the West Coast's most important financial and technological centers, the San Francisco Bay Area and Silicon Valley. Gas and electric services are provided to over 11 million residents with this service territory.

Power generated at Moss Landing Power Plant is transmitted to one of the three PG&E switchyards for distribution to one of the many substations in PG&E's system. The bulk of the power is sent over major transmission lines to Metcalf Substation located approximately 35 miles to the northeast near the City of San Jose, to Los Banos Substation which is located in Merced County about nine miles west of the City of Los Banos, and Panoche Substation located in Fresno County east of Highway 5 on Panache Road. From these major substations, power is routed throughout the electric transmission system in California.



ELECTRIC TRANSMISSION MAP
MOSS LANDING POWER PLANT
MASTER PLAN

High Voltage Lines

FIGURE 4

3. COASTAL IMPLEMENTATION PLAN POLICIES

The Monterey County Coastal Implementation Plan (Part 2 - Regulations for Development in the North County Land Use Plan Area) outlines general and specific development standards for Energy Facilities and Industrial Development. The following are standards specific to Moss Landing Power Plant's site and proposed action plans to address those issues:

3a. General Development Standards

20.144.160.C.1.a.

"Coastal dependent industrial facilities shall expand within existing sites before off-site expansion shall be considered. Commercial fishing activities and aquaculture shall have priority over other types of coastal-dependent industrial uses in industrial areas (Ref. Policy 5.5.2.1 Moss Landing Community Plan)."

Response

Projects planned by DENA and PG&E always consider the siting of new facilities within the existing boundaries of Moss Landing Power Plant. If options for upgrading and modernizing DENA and PG&E facilities require off-site areas, impacts to other types of coastal-dependent uses will be considered.

20.144.160.C.1.c.

"Future expansion, improvement or other development including fuels conversion at PG&E, National Refractories and any other heavy industry in the area shall be considered in accordance with the master plan and associated Environmental Impact Report which has been developed for these facilities. This master plan requirement shall not apply to emergency or administratively approved developments under Section 30624 of the Coastal Act. The master plan must have been developed by the applicants and submitted to Monterey County for review and approval prior to approval by the County of any development permits for these industries. The master plans shall address the long-range development and operation of the facilities including:

1) physical expansion and new construction;
2) major operational changes in fuels or fuel delivery systems;
3) circulation or transportation improvements;
4) electrical power transmission;
5) alternative development opportunities:
6) environmental considerations;
7) potential mitigation of adverse environmental impacts; and
8) conformance to all other policies of the North County Land Use Plan and other State and Federal regulations.

Subsequent to approval of these master plans, permit requests not in conformity with the master plans shall be considered only upon completion and approval of necessary amendments to the master plan.

This requirement shall not be construed to require disclosure in the master plans of trade secrets, proprietary or confidential information, but only location of buildings and other land use matters necessary for planning purposes (Ref. Policy 5.5.2.2 Moss Landing Community Plan)."

Response

This master plan has been developed in accordance with this policy.

20.144.160.C.1.d.

"For on-site modernization and upgrading of existing facilities, the least environmentally damaging alternative shall be selected. This determination shall be made with background information in such documents as the Planning Department deems necessary to determine the actual affect of the development upon the project site habitat and the surrounding area. These documents may be in the form of, but not limited to, biological/botanical reports pursuant to Section 20.144.040.A, a forest management plan pursuant to Section 20.144.050.B, or an Environmental Impact Report of the appropriate level. When selection of the least environmentally damaging alternative is not possible for technical reasons, adverse environmental effects of the preferred alternative shall be mitigated to the maximum extent. These mitigation shall be identified by a document such as a focused EIR which more closely determines the effect of an alternative plan which was not identified as the environmentally damaging in previous studies required for the proposed development (Ref. Policy 5.5.2.3 Moss Landing Community Plan)."

Response

DENA and PG&E shall prepare and provide to the appropriate agencies the necessary documentation for those projects requiring environmental review pursuant to the California Environmental Quality Act.

20.144.160.C.1.e.

"Modernization and expansion of industrial facilities shall be compatible with existing community land use patterns and circulation system capacities, planning objectives and local air quality regulations in effect at the time of the granting of such approval for said expansion by the appropriate agencies (Ref. Policy 5.5.2.4 Moss Landing Community Plan)."

Response

DENA and PG&E shall prepare and submit to the appropriate agencies, the necessary documentation for modernization and expansion of its facilities as required by the California Environmental Quality Act (CEQA) and the Warren-Alquist Act. The documents shall address existing community land use patterns, circulation system capacities, planning objectives and local air quality regulations.

20.144.160.C.1.f.

"Potentially hazardous industrial development (that development which is shown to be, through the various required and available documents, to be harmful to the environment of the area or is shown that the establishment, maintenance or operation of the use applied for will be detrimental to the health, safety, peace, morals, comfort and general welfare of persons residing or working in the neighborhood of such a proposed use or be detrimental or injurious to property and improvements in the neighborhood or general welfare of the County) shall not be located adjacent to developed areas (Ref. Policy 5.5.2.5 Moss Landing Community Plan)."

Response

DENA and PG&E shall prepare and submit to the appropriate agencies, the necessary documentation for modernization and expansion of its facilities as required by the California Environmental Quality Act (CEQA) and the Warren-Alquist Act. The documents shall address existing community land use patterns, circulation system capacities, planning objectives and local air quality regulations.

20.144.160.C.1.g.

"Nuclear plants shall not be allowed to disrupt environmentally sensitive habitats and shall not be allowed in high seismic hazard areas as outlined in Section 20.144.100.A (Ref. Policy 5.5.2.6 Moss Landing Community Plan)."

Response

Neither DENA nor PG&E have plans to build nuclear plants in Monterey County.

20.144.160.C.1.h.

"Use of coal as a fuel shall be considered only if other cleaner fuels become unavailable and it is proven, by the completion of an environmental impact report of appropriate scope, that there are no adverse impacts on agriculture and fishing. Where coal fuel industries are allowed, the most effective air pollution control technology available shall be utilized to ensure minimum sulfur dioxide output (Ref. Policy 5.5.2.6 Moss Landing Community Plan).

Response

If cleaner fuels become unavailable and consideration must be made to use coal at the plant, appropriate environmental studies shall be prepared to determine measures which will minimize adverse effects to air quality, public safety, agriculture and acquaculture.

20.144.160.C.1.i

"Any structural expansion of the PG&E and National Refractories plants shall include plans for major access on Dolan Road including any attendant improvements to Dolan Road and or Highway 1 (Ref. Policy 5.5.2.7 Moss Landing Community Plan)."

Response

The main entrance to the Moss Landing Power Plant has been relocated to Dolan Road from Highway 1. Projects at the plant currently under consideration by DENA and PG&E are not expected to substantially increase the number of employees permanently assigned there. Traffic on Dolan Road and Highway 1, therefore, is not expected to be permanently increased due to projects described in this master plan.

20.144.160.C.1.j

"One condition of any future expansion of off-shore tanker terminal mooring facilities shall be the demonstrated effectiveness to Monterey County of oil spill contingency plans to minimize the environmental effects of oil spills to the maximum extent feasible, as provided for in the existing federal, state and local requirements for oil-spill mitigation plans in force at the time of project application. Maximum protection of Elkhorn Slough must be provided (Ref. Policy 5.5.2.8 Moss Landing Community Plan)."

Response

No plans presently exist for the expansion of the offshore tanker terminal facilities. However, any future plans for expansion shall incorporate oil spill contingency plans to minimize the environmental effects of oil spills to the maximum extent feasible, as provided for in the existing federal, state and local requirements for oil-spill mitigation plans. DENA's current fuel oil facility operating and emergency plans are consistent with federal state and local requirements.

20.144.160.C.1.k.

"All new heavy industry must be coastal-dependent (Ref. Policy 5.5.2.10 Moss Landing Community Plan)."

Response

Regulation of land uses in the Moss Landing Community is guided by the policies and standards outlined in various Monterey County planning documents such as the "Moss Landing Community Plan". Moss Landing Power Plant site is an existing coastal-dependent facility in conformance with the County's policies to encourage coastal dependent heavy industry in the Moss Landing Community.

20.144.160.C.1.l.

"Additional development of environment-polluting heavy industry shall not be permitted (Ref. Policy 5.5.2.11 Moss Landing Community Plan)."

Response

DENA and PG&E recognize that the County is responsible for ensuring that future industrial development in the Moss Landing Community meets all appropriate regulatory agency requirements and the California Environmental Quality Act. The Moss Landing Power Plant site is an existing site operating fully in conformance with the Monterey County land use and coastal development guidelines and numerous local, state, and federal regulatory agency guidelines.

3b. Specific Development Standards

20.144.160.C.2.a

"Future upgrading or modification of PG&E generating units 1-5, will require as part of their development plans to limit the cooling water discharge outfall into the slough to the historical discharge rate. If there is a proposed increase in the discharge rate, an appropriately focused environmental impact report shall be required to determine the effect on the slough and the surrounding habitat. (Ref. Policy 5.5.3.1 Moss Landing Community Plan)."

Response

DENA currently owns Units 1-5. Any plans by DENA for the upgrading or modification of Units 1-5 resulting in an increase in the design discharge rate of the cooling water system will incorporate the required environmental documents to evaluate the impact upon Elkhorn Slough and surrounding habitat.

20.144.160.C.2.c

"In the event that conversion of the PG&E power plant to a coal-burning facility is proposed, an environmental impact report shall be prepared to determine all effective mitigation measures minimizing adverse effects to air quality, public safety, agriculture and aquaculture. The environmental impact report shall address the location of a safe disposal site for coal ash and collected air pollutants which shall be located away from inhabited areas and sensitive resources. Methods to reduce potentially significant environmental effects to an acceptable level from runoff, as indicated by the environmental impact report, shall be incorporated into the power plant and disposal site design (Ref. Policy 5.5.3.5 Moss Landing Community Plan)."

Response

DENA currently owns the power plant. No plans currently exist for major operational changes in fuels or fuel delivery systems for the plant. However, if cleaner fuels become unavailable and consideration must be made to use coal at the plant, environmental studies shall be prepared to determine measures which will minimize adverse effects to air quality, public safety, agriculture and aquaculture. The studies will also address the location of a safe disposal site for coal ash and collected air pollutants which shall be located away from inhabited areas and sensitive resources. Methods to reduce potentially significant environmental effects from runoff to an acceptable level, as indicated by the environmental studies, shall be incorporated into the power plant and disposal site design.

20.144.160.C.2.d

"The PG&E site south of Potrero Road is not considered a suitable location for future development of a nuclear power plant facility due to potential hazards related to geological conditions, proximity to populated areas, land use conflicts and possible impacts on marine and estuarine environments, (Ref. Policy 5.5.3.6 Moss Landing Community Plan)."

Response

These parcels of land were sold to private parties in 1983 and are currently being utilized for agricultural purposes. PG&E maintain only subsurface mineral rights to the parcels. Neither DENA nor PG&E have plans to build nuclear plants in the Monterey County.

20.144.160.C.2.e.

"For industries with significant emission, as a condition of issuance of development permits, Monterey County shall require that an atmospheric surveillance station be established in the Moss Landing vicinity at the expense of and by the applicant. This station shall be thereafter be operated by the Monterey Bay Unified Air Pollution Control District to monitor air pollution concentrations in addition to pertinent meteorological studies (Ref. Policy 5.5.3.8 Moss Landing Community Plan)."

Response

Atmospheric surveillance stations were installed and operated between June 1993 and June 1994 in a cooperative effort between the Monterey Bay Unified Air Pollution Control District, National Refractories, and PG&E. The data collected-was used to prepare the Moss Landing Air Monitoring Program, Final Report, May 1996. The report was submitted to the Monterey Bay Unified Air Pollution Control District.

20.144.160.C.2.f

"Expansion of heavy industrial uses on the property owned by PG&E west of Highway 1 and east of Moss Landing Harbor shall be limited to improvements or modification that are compatible with the road right-of-way as established by zoning and previous permit action, along with the visual development standards contained in Section 20.144.030 (Ref. Policy 5.5.3.9 Moss Landing Community Plan)."

Response

Expansion of heavy industrial uses on the DENA property west of Highway 1 and east of Moss Landing Harbor will be limited to improvements or modifications that are compatible with the road right-of-way as established by zoning and previous permit action, along with the visual development standards contained in Section 20.144.030.

20.144.160.C.2.g

"Possible future development of a transmission line north from the PG&E power plant site must be compatible with research and education use of the estuarine sanctuary. Potential environmental effects shall be reduced to an acceptable level before development is allowed (Ref. Policy 5.5.3.10 Moss Landing Community Plan)."

Response

DENA now owns the power plant. Presently, DENA and PG&E have no plans for the routing of new transmission lines out of the plant. Any plans for the development of a transmission line north from the plant will consider research and educational use of the estuarine sanctuary.

4. ENVIRONMENTAL SETTING

4a. Land Use

Duke Energy North America Moss Landing Power Plant and Pacific Gas and Electric Company's Moss Landing electric transmission substation are approximately 12 miles northwest of Salinas and south of Elkhorn Slough. Moss Landing Harbor, on Monterey Bay, is adjacent to the westerly property line of the plant. The DENA power plant consists of approximately 236 acres bounded on the west by Moss Landing Harbor and on the south by Dolan Road. The PG&E electric transmission operation consist of approximately 134 acres bound on the west by Highway 1 and south by DENA Moss Landing Power Plant (see Figure 2).

The community's unique setting supports a variety of land uses from cattle grazing to industrial processing plants. The three primary industrial activities in the Moss Landing Area are DENA's Moss Landing Power Plant, PG&E's Moss Landing electric transmission substation and National Refractories' Moss Landing Area Plant. Other industrial activities located within the harbor district are boat yards and seafood processing operations. The prevalent land uses of the area are those related to agriculture or linked to the harbor i.e., commercial fishing, recreational boating and marine research.

Moss Landing Harbor, at the mouth of Elkhorn Slough, is a focus of coastal development activity, including commercial fishing, a yacht club and docking facilities. The harbor is also the home of the Moss Landing Marine Laboratory and the Monterey Bay Aquarium Research Institute.

Tourism is a source of revenue for the community, although not on the order of Carmel/Monterey or Santa Cruz. The limited commercial activities are represented by various small antique shops and restaurants in the harbor, and along Moss Landing Road and Highway 1. This beach village draws mainly recreational fisherman, clammers, bird watchers, surfers and boaters.

Agricultural activity in the immediate area east of the plant is primarily cattle grazing. South of the Moss Landing area and north of Elkhorn Slough, the fertile soils support the production of row crops such as brussel sprouts, strawberries and artichokes.

A network of highways connects the Moss Landing area with the Monterey Peninsula, Santa Cruz and the South Bay. Highway 1 passes through the power plant property east of the harbor. Highway 101 is readily accessible via Highways 156 and 183 to the southeast.

4b. Environmental Resources

Moss Landing Power Plant is in an environmental setting with complex biological, cultural, geologic, and hydrologic resources. Detailed information is contained in Appendices A-D.

Biological Resources

The power plant and substation are between two ecologically important estuarine systems: Elkhorn Slough to the north and Moro Cojo Slough to the south. These sloughs are critical habitat for a number of threatened and endangered species. Shorebirds and waterfowl are observed throughout the year in the

Moss Landing area, with peaks during spring and fall migrations. Over 90 species of water-associated birds have been reported at the Elkhorn Slough. The California Department of Fish and Game has assumed responsibility for the management of the Elkhorn Slough Estuarine Sanctuary and operates a visitor center there.

The Monterey Bay, as a National Marine Sanctuary, is also a critical biological resource and management of the power plant and substation are conducted according to the sanctuary regulations.

The plant property itself contains little critical habitat necessary for the survival of threatened or endangered species. Modernization and upgrading of the facilities will be planned to minimize impacts on surrounding biological resources.

Cultural Resources

The majority of the plant property has been developed over the past forty years due to a number of construction activities. These developed areas have a low potential for undisturbed cultural resources. Surveys of the plant site have identified sites with potential cultural resources. Two documented archeological sites are present on the plant site: CA-MNT-229 and CA-MNT-277. No maps are included in this report because the locations of these sites are not intended for public distribution. The plant's proposed projects will not be impacting these areas.

Geology and Soils

The Moss Landing area lies along the central California coast within the Coast Ranges geomorphic province. The site area has a varied subsurface comprised of marine and non-marine sediments. In general, the soil profile at the power plant can be described as sands and silty sands, to depths up to 20 feet. The soil profile then grades to clays, silty clays, and organic clays to depths of about 30 feet. From about 30 to 40 feet, the soils grade to clean, dense sands. Dune soils and those in the low-lying areas support watershed and estuarine habitat. Soils on the terrace deposits support agricultural and dairy activities.

The Monterey Bay Region, of which the Moss Landing area is a part, is in a seismically active region adjacent to the San Andreas Fault. Some damage occurred at the plant during the magnitude 7.1 Loma Prieta earthquake on October 17, 1989. The plant structure and equipment survived the earthquake well, however, some damage occurred to electrical equipment in the switchyard. Equipment with improved design has been installed to prevent such future damage.

Hydrology

The major surface water features near Moss Landing Power Plant are Moss Landing Harbor, Elkhorn Slough, the Old Salinas River bed, Moro Cojo Slough and Monterey Bay. The harbor also provides the source water for the power plant. The total drainage area of the plant is small and has very little effect on the regional drainage pattern. Because of the low 24-hour, 100-year storm depth and small drainage area, local runoff at the plant is small. Flooding at the plant is not expected. Discharge points for major storm runoff are monitored and controlled as part of DENA's and PG&E's Spill Prevention Control and Countermeasure Plan and the National Pollutant Discharge Elimination System permit.

5. TRAFFIC

The main entrance to the Moss Landing Power Plant is on Dolan Road. Under normal operating conditions DENA and PG&E employees, contractors and visitors use this entrance. The entrance on Highway 1 is used only for emergencies and exiting north bound purposes at specific times. Parking for private and company vehicles is provided for employees, contractors and visitors throughout the plant. A third entrance and parking area approximately 1/2 mile east of Highway 1, on Dolan Road, is used by contractors during periodic peak work periods.

The power plant is manned 24 hours a day, seven days a week. Approximately 13 DENA and 96 PG&E employees are assigned to the plant site during various shifts. Additional personnel are used as needed for projects and for ongoing maintenance at the plant. In 1994, when there were approximately 280 employees employed at the plant site, approximately 380 vehicle trips are generated daily during the peak traffic periods in the morning and afternoon. Traffic volumes at the plant were recorded during a two-day period during the month of March 1994. In November 1998 traffic volumes were again recorded during a two-day period. Approximately 267 vehicle trips were generated daily during the peak traffic periods in the morning and afternoon. This represents a significant decrease in traffic volume generated by the plant. This decrease in traffic volume is due to reduced manpower needs at the plant.

The following data represents traffic volume entering and exiting the plant during a typical weekday for both March 1994 and November 1998.

	DOLAN GATE				**HWY. 1 GATE**	
	Entering		**Exiting**		**Exiting**	
Time	**1994**	**1998**	**1994**	**1998**	**1994**	**1998**
6:00 - 6:30	17	13	0	5		
6:30 - 7:00	112	35	2	3		
7:00 - 7:30	32	18	6	9		
7:30 - 8:00	23	35	7	7		
8:00 - 8:30	7	3	0	7		
3:00 - 3:30	5	8	5	12	1	
3:30 - 4:00	2	11	5	7	3	
4:00 - 4:30	5	8	10	29	3	6
4:30 - 5:00	2	2	12	26	7	3
5:00 - 5:30	2	4	52	7	14	
5:30 - 6:00	1	1	31	4	12	
6:00 - 6:30	1	1	5	3	0	

To reduce traffic volume generated by the plant site during the peak traffic periods, both DENA and PG&E encourage carpooling. Also, the plant uses flexible work hours. In addition to reducing traffic volume, some of these measures have the positive environmental effect of reducing emissions and gasoline usage.

CALTRANS, Monterey County Department of Public Works, National Refractories, California Coastal Commission and PG&E convened in 1983 to discuss the traffic conditions at Dolan Road and the Highway 1 intersection. It was mutually agreed that the intersection could not handle the peak hour traffic generated by both National and PG&E entrances on Highway 1. In 1985, PG&E relocated its main entrance to the plant from Highway 1 to Dolan Road.

CALTRANS has explored the feasibility of widening Highway 1 to four lanes but currently has no funding to complete the project. Data gathered for the widening project environmental document indicates that the traffic volume on Dolan Road is exceeding its design capacity.[1] Dolan Road is projected to reach an "F" level of service by the year 2020 if the proposed Highway 1 widening is not completed. A "D" level of service is expected if the widening is performed. The levels of service are defined as follows:

> D - Congested; long strings of traffic symptomatic. Passing generally unsafe, less frequent, never significantly gainful. Thus rate of travel for all is dictated by the slowest motorists on the road. Air and noise pollution more noticeable, constant. Traffic conditions viewed as unpleasant by many drivers, although the more leisurely look at the scenery may be appreciated by the passengers. Steady flow means high volume of cars per hour, despite reduced median travel speed. Operating speed is 35 mph or above.[2]
>
> F - Traffic is "bumper to bumper"; unstable flow is characteristic, both short and long stoppages not unusual. Resembles big city "rush hour" commuter conditions. Travel frustrating, unpleasant. Overheating, mechanical breakdowns more frequent. High air pollution. Maximum number of cars on road, but volume per hour reduced by inefficient rates of flow. In the extreme, both speed and volume drop to zero. If a queue of stopped cars is observable at entry points, roadway may become self-regulating for those with a choice (i.e., non resident recreational motorists) provided they are given a chance to turn about.[2]

The plant's approximate 380 vehicle trips generated daily during the peak traffic periods in March 1994 accounted for less than 10% of the total traffic volume on Dolan Road in 1987. If the plant traffic volume remained constant, this figure would have dropped to less than 7% in the year 2020 based upon projected traffic volumes in the CALTRANS study. Since plant vehicle trips generated daily during the peak periods have significantly reduced, the impacts to plant traffic on Highway 1 and Dolan Road have also reduced. Projects identified in this master plan should not increase permanent staffing at the plant significantly and will not contribute to long-term increase in traffic volumes at the Dolan Road and Highway 1 intersection. However, there will be short-term increases in traffic volume during project construction as a result of temporary construction crews on site, and vehicles delivering materials. Construction work requiring temporary crews is performed generally during the months of October through May. This scheduling minimizes the plant's impacts on traffic during the peak summer months, when tourism and recreational traffic is at its highest on Highway 1. DENA met with Caltrans in February and March of 1999 to discuss the major upcoming proposed projects and the possible traffic impacts. A traffic impact study will be done for the individual projects, as required.

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[1] TAMS Consultants, Inc.; Route 1 Improvements, Castroville - Santa Cruz County Line, January, 1990. Table 3

[2] From Highway Capacity Manual, Highway Research Board, Division of Engineering and Industrial Research, National Academy of Sciences - National Research Council, Washington, D.C., 1965.

6. REGULATORY FRAMEWORK

Moss Landing Power Plant site operates under the jurisdiction of various local, state and federal agencies. The following are agencies, which the plant interacts with on a regular basis for normal plant maintenance and operations:

6a. Public Agencies Associated with Normal Site Operations

Local Agencies

Monterey County Planning and Building Inspection Department - review and issuance of Coastal Development permits and building permits.

Monterey County Health Department - regulation of the underground gas storage tanks, hazardous materials, waste generation, the domestic water system, and noise control.

Monterey Bay Unified Air Pollution Control District (MBUAPCD) - responsible for regulation of air emissions and the issuance of construction and operating permits.

Monterey County Water Resources Agency - regulates activities that affect the water supply.

Moss Landing Harbor District – regulation of the harbor waters and part of the Elkhorn slough.

North County Fire Protection District - regulates fire safety aspects of proposed projects.

State Agencies

California Environmental Protection Agency, Department of Toxic Substance Control (CALEPA, DTSC) - regulates hazardous materials and issues hazardous waste facility permits.

California Coastal Commission (CCC) - review and issuance of Coastal Development permits for onshore and offshore projects, i.e. marine terminal.

Regional Water Quality Control Board, Central Coast Region (RWQCB, CCR) - regulate discharges from plant operating facilities, the waste water system and storm water runoff. Issues National Pollutant Discharge Elimination System (NPDES) Permits.

California Air Resources Board (CARB) - regulates the state air quality through the local APCD.

California Department of Fish & Game (CDF&G) - review of oil spill emergency response procedures.

State Lands Commission (SLC) - approval of dredging operations at intake and outfall structures and inspections of tanker berths.

California Energy Commission (CEC) - permitting agency responsible for issues relating to the redevelopment of the facility's energy production capacity.

California Public Utilities Commission (CPUC) - regulates franchise operation of the facility.
California Occupational Safety and Health Administration (CAL/OSHA) - regulates personnel safety and health administration.

California State Fire Marshall (CSFM) - regulates the use of flammable materials and pipeline safety.

California Department of Parks and Recreation - manages the Salinas River and Moss Landing State Beach.

California Department of Transportation (CALTRANS) - regulates activities along Highway 1.

California Department of Health Services (DHS) - regulates Environmental Laboratory Accreditation Program (ELAP). *(DENA only)*

Federal Agencies

Elkhorn Slough National Estuarine Research Reserve (a joint state-federal management) – interested in all activity that may impact the reserve.

Environmental Protection Agency (EPA) - issuance of permits for hazardous wastes and regulation of materials management on site and air quality control via local air district.

United States Coast Guard (USCG) - reviews and approves plans for the maintenance of the marine oil terminal, in caretaker status.

United States Army Corps of Engineers (USCOE) - regulates activities located within the waters of the U.S. and navigable waterways.

Monterey Bay National Marine Sanctuary, managed by the National Oceanic and Atmospheric Administration (NOAA) - approval of discharges into Elkhorn Slough and Monterey Bay.

United States Fish and Wildlife Service (USFWS) - regulates activities having the potential to impact a threatened or endangered species.

United States Department of Transportation, Research and Special Programs Administration (DOT-RSPA) – Regulates pipeline safety and review of oil spill emergency response procedures.

6b. DENA and PG&E Activities and the Permitting Agencies

Table 6-1 includes a matrix which can be used to cross reference the agencies listed in Section 6a (which may be involved in the approval/review process) with possible projects initiated by DENA and PG&E.

Table 6-1

Permitting Jurisdictional Matrix - Moss Landing Power Plant Site Master Plan

Land use activities within the Moss Landing Harbor area are regulated by of a number of local, state, and federal agencies. Moss Landing Power Plant site is also required to operate in accordance with the standards of a number of additional state and federal agencies. The following matrix cross references those agencies which oversee and regulate various aspects of the operation of the plant through either permits or some other form of discretionary approval with a general list of projects which are routinely undertaken by the plant and would require some form of approval from one or more regulatory agencies.

PROJECT SCOPE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LOCAL AGENCIES																
A. Co. Planning	Y		Y	Y	R			Y	Y	R	Y	Y			Y	Y
B. Co. Building	Y		Y	R				Y		R						
C. Co. Health				Y				Y	Y			Y				
D. Mont. Bay APCD			R		Y				R	Y		Y				
E. Co. WRA								R			Y					
F. North Co. Fire P. Dist.	R															
STATE AGENCIES																
G. Ca. DTSC				R						R						
H. CCC	R	Y				R	Y			R	R	Y	Y		R	
I. RWQCB				R			Y	Y	R	R	Y					
J. CARB			R		R					R						
K. CDF&G	R		R			Y	Y			R	R	Y			Y	
L. SLC	R	Y					Y			R		Y	Y			
M. CEC										Y						
N. CPUC										Y						
O. CAL/OSHA				R					R							
P. CSFM												Y	Y			
Q. ML Harbor Dist		R				R	Y			R	R	Y				
R. Parks and Rec.												Y		Y		
S. CalTrans																Y
T. Health Services									R			R				
FEDERAL AGENCIES																
U. EPA				R	R				Y	R		Y				
V. USCG	R	R				R	R					Y	Y			
W. USCOE	R	Y					Y			R			Y		R	
X. Mont. Bay Sanctuary	R	Y				Y	Y			R			R		R	
Y. USFWS															Y	
Z. DOT-RSPA												Y				

LEGEND:
Y = An Approval or permit may be required from the agency
R = Notification of the agency is recommended

PROJECT SCOPE:

1. Will the project result in the construction of a new structure within the County boundaries?
2. Will the project involve any dredging or fill activity within Moss Landing Harbor or Elkhorn Slough?
3. Will the project involve grading activities over 50 cubic yards?
4. Will the project result in the generation, use, storage, or transport of any hazardous materials as defined under Proposition 65?
5. Will the project have the potential to impact the ambient air quality?
6. Will the project involve use of watercraft within Moss Landing Harbor or Elkhorn Slough?
7. Will the project involve the placement or construction of new structures within water areas of Moss Landing Harbor or Elkhorn Slough?
8. Will the project require septic systems or potable water sources?
9. Will the project have the potential to create a health hazard or potential health hazard to the public and employees?
10. Will the project involve expansion of the generating capability of the plant?
11. Will the project have the potential to impact the area hydrology?
12. Will the project involve fuel oil or the fuel oil pipeline?
13. Will the project be located within Monterey Bay?
14. Will the project be located within the Moss Landing State Beach boundaries?
15. Could the project potentially impact any environmentally sensitive areas or species?
16. Could the project potentially impact traffic or cross Highway 1?

AGENCY LIST

LOCAL AGENCIES

A. Co. Planning - Planning section of the Monterey Planning and Building Inspection Dept.
B. Co. Building - Building section of the Monterey Planning and Building Inspection Dept.
C. Co. Health - Monterey County Health Department
D. Mont. Bay APCD - Monterey Bay Unified Air Pollution Control District
E. Co. WRA - Monterey Co. Water Resources Agency
F. N.Co.Fire P. Dist.- North County Fire Protection District

STATE AGENCIES

G. CALEPA. DTSC - California Department of Toxic Substance Control
H. CCC - California Coastal Commission
I. RWQCB - Regional Water Quality Control Board - Central Coast Region
J. CARB - California Air Resources Board
K. CDF&G - California Department of Fish and Game
L. SLC - State Lands Commission
M. CEC - California Energy Commission
N. CPUC - California Public Utilities Commission
O. CAL/OSHA - California Occupational Safety and Health Administration
P. CSFM - California State Fire Marshal
Q. ML Harbor Dist. - Moss Landing Harbor District (Authority granted by SLC)
R. Parks and Rec. - California Department of Parks and Recreation
S. CalTrans - California Department of Transportation
T. Health Services - California Department of Health Services

FEDERAL AGENCIES

U. EPA - Environmental Protection Agency
V. USCG - U.S. Coast Guard
W. USCOE - U.S. Army Corps of Engineers
X. Mont. Bay Sanct- Monterey Bay National Marine Sanctuary (managed by the National Oceanic and Atmospheric Administration)
Y. USFWS - U.S. Fish and Wildlife Service
Z. DOT-RSPA - Department of Transportation, Research and Special Programs Administration

6c. Operating Permits Maintained for the Moss Landing Power Plant Site

The following is a listing of existing permits, which are required for the operation of the plant. Plant personnel review and update the permits for approval by the responsible agency following fixed schedules ranging from one to ten years.

PERMITS MAINTAINED FOR DUKE ENERGY NORTH AMERICA

Water Quality

Agency: Regional Water Quality Control Board (RWQCB) Central Coast Region and United Sates Environmental Protection Agency.

- Circulating Water Discharge (sea water for condensers)
  Permit: NPDES Permit Waste Discharge Requirements (WDR) Order 95-22/CA 000 6254

- Domestic Waste Water System
  Permit: WDR 89-19

- Hazardous Waste (liquids to surface impoundments) and Associated Ground Water Monitoring Program.
  Permit: WDR 94-106

- On-Site Oil Management:
  Permit: Required to have a Spill Prevention Control and Countermeasures Plan (SPCC) for oil spill response.

Agency: Monterey County Health Department

- Well Water System (non-community system)
  Permit: No. WAT - 0989

- Underground 4000 gallon Gasoline Storage Tank
  Permit: 3131

Air Quality

Agency: Monterey Bay Unified Air Pollution Control District (APCD)

- Boiler Operations and Emissions
  Permits: Nos. 9314 and 9315

- Fuel Oil Tank Permits for Fuel Oil
  Permits: Nos. 9325 (tank 10), 9326 (tank 11), 9327 (tank 13), 9328 (tank 14), 9329 (tank 15), 9330 (tank 16), 9331 (tank 17), 9332 (tank 18) and 9333 (tank 19).

- Sand Blasting Facility
  Permit: No. 9319

- Abrasive Blasting Equipment #1
  Permit: 9320

- Abrasive Blasting Equipment #2
  Permit: 9321

- Paint Spray Facility
  Permit: 9318

- Underground 4000 gallon Gasoline Storage Tank, (used for company vehicles only).
  Permit: 9322

- Laboratory Fume Hoods
  Permit: 9323

- Exhaust System (480 Volt Switch Center Circuit Breaker Test Facility)
  Permit: 9324

- Start-up Package Boiler
  Permit: 9316

- Standby Engine-Generator
  Permit: 9317

- Federal Operating Permit (Title V)
  Permit: TV14-01

Hazardous Wastes/Materials

Agency: California Environmental Protection Agency (CAL EPA), Department of Toxic Substances Control (DTSC)

- Hazardous Waste Surface Impoundment (ponds) * (metal cleaning waste pond 1, 2 and 3)
  Permits: (for EPA ID Number CAT 080 011 653)

Agency: Monterey County Health Department

- Hazardous Material Management Underground Tank and Hazardous Waste Generation
  Permit: 0513 – HAZ 3131
  (AB - 2185/86 Business Plan Requirements)

Agency: Regional Water Quality Control Board (RWQCB) Central Coast Region

- Hazardous Waste Management
  Permit: WDR 94-106 (Surface Impoundments)

Agencies: California State Lands Commission and California Coastal Commission (CCC)

- Marine Oil Terminal Maintenance (caretaker status)
  Permits: Maintenance Plan:

** Note: See Water Quality Section for surface impoundment water requirements.*

PERMITS MAINTENANED BY PACIFIC GAS AND ELECTRIC

Air Quality

Agency: Monterey Bay Air Pollution Control District (APCD)

- Natural Gas Condensate Tank (700 gallons)
  Permit:

Hazardous Waste/Materials

Agency: United States Environmental Protection Agency and Regional Water Quality Control Board (RWQCB) Central Coast Region.

- On-Site Oil Management:
  Permit: Required to have a Spill Prevention control and Countermeasures Plan (SPCC) for oil management.

Agency: Monterey County Health Department

- Hazardous Materials Business Plan

6d. Coastal Development Permits Issued to Moss Landing Power Plant Site since 1980.

Permits Issued to PG&E and then transferred to DENA on July 1, 1998

Coastal Development Permits issued by the California Coastal Commission

Installation of piping and valves to existing generator units
Permit: 3-85-18

One story addition to an existing administration building
Permit: 3-84-132

Motor Control Building and parking lot
Permit: 3-84-14

Placement of riprap and sand to protect water intake structure and fuel oil pipeline
Permit: 3-84-14

Main fuel oil additive storage tank and portable saltwater decanting tank
Permit: E-83-2

Washroom and locker room
Permit: E-82-27

Off-shore marine oil terminal
Permit: P-493

Additional fuel tanks
Permit: P-2125

Temporary throttling gates
Permit: 3-81-88

Addition to the Administration Building
Permit: 3-84-180

Coastal Development Permits Issued by Monterey County

Hazardous Materials Storage Facility Building
Permit: PC 07764

Filter press
Permit: PC 7765

Particulate Reduction Program
Permit: PC 04654

Motor Control Building
Permit: PC 05108

Sand Blast Building
Permit: PC 05767

Control Building Remodel
Permit: PC 05788

Instrument Building Remodel
Permit: PC 05791

Seawater Evaporator
Permit: PC 06097

Filter Press Building
Permit: PC 07768

Moss Landing Power Plant Master Plan 1994-1998
Permit: PC 94169

Package Steam Boiler for Unit 6 & 7; addition to height
Permit: PC 95035

Coastal Development Permits Issued by Monterey County to Duke Energy

Duke Energy Sign
Permit: PLN 980620

Coastal Development Permits Issued by Monterey County to PG&E

Remodel of four offices and one maintenance shop
Permit: PC 94110

Modular Office for Transmission System Maintenance and Construction
Permit: PC 95033

Reduction of Front Yard Setback
Permit: ZA 05179

Minor Subdivision
Permit: PLN 970371

Replace Electrical Transmission Equipment and Construction of a Control Building
Permit: PLN 970443

Fueling Station
Permit: PLN 980060

6e. Ongoing Regulatory Programs

Spill Prevention Control and Countermeasure Plan (SPCC) *(DENA and PG&E)*

DENA and PG&E have prepared a Spill Prevention Control and Countermeasure Plan (SPCC) in order to minimize the potential for onshore oil spills; to contain accidentally spilled oil; and to provide maximum efficiency in the cleanup of spilled oil.

This plan has been prepared pursuant to the Environmental Protection Agency regulations on oil pollution prevention, 40 CFR Part 112. This plan is reviewed and evaluated at least once every three years or immediately after a reportable spill event.

Containerized Hazardous Waste Management *(DENA and PG&E)*

Hazardous waste, such as oily rags, paint cans and aerosol cans, generated through plant activities, is identified and tracked. Clean hazardous waste storage drums are issued to trained personnel for accumulation of the materials. The phases of filling the drums, storage and disposal are tracked. Reporting is made to the Department of Toxic Substances Control and the Environmental Protection Agency.

Stack Emissions Management *(DENA only)*

Exhaust gases discharged through the stack are continuously monitored for certain compounds specified by the Monterey Bay Unified Air Pollution Control District (APCD), such as nitrogen oxides and carbon monoxide. The plant has online systems, which provide information on the makeup of the exhaust. Monthly and quarterly emissions reports are submitted to the APCD.

Proposition 65 Identification and Notification *(DENA and PG&E)*

This program was developed as a result of the California Proposition 65 (Prop 65) legislation passed in 1986. Prop 65, the Safe Drinking and Toxic Enforcement Act, requires organizations dealing with potentially hazardous substances to warn employees and the public who may come in contact with these substances. The program identifies labels and tracks all chemicals used that are on the Prop 65 list. Employees are notified when their work involves exposure to these chemicals, and training is provided to all plant employees on safe work practices. The plant also encourages the use of substitute chemicals and changes in work practices to minimize the use of Prop 65 chemicals.

Waste Minimization and Recycling *(DENA only)*

Work practices at the plant generate both small quantities of containerized hazardous waste and larger amounts of waste liquids (stack and boiler cleanings, washings, etc.). In the development of work scope for these various jobs, alternate work practices and processes are evaluated to consider options, which reduce the wastes generated. Material is recycled rather than dumped when another use can be found. The Waste Minimization Plan for the plant is updated annually and regulated by the Department of Toxic Substance Control.

Water Discharge Management *(DENA only)*

Water discharges from Moss Landing Power Plant are managed under the requirements of the RWQCB's National Pollutant Discharge Elimination Systems Permit for the plant. This includes sampling discharges and reporting results quarterly and annually to the RWQCB.

6f. Additional Activities

Emergency Response Program *(DENA and PG&E)*

An Emergency Response Plan has been prepared in order to ensure proper response to emergency situations. The plan includes response procedures for medical emergencies, fire, hazardous waste spills, bomb threats and other emergencies. It also includes procedures for emergency reporting requirements.

Foam Barrier Gates *(DENA only)*

Foam barrier gates were installed for Units 1-5 discharge to reduce visual impacts from foam generated by the discharge to Elkhorn Slough.

Air Toxic Hot Spots *(DENA only)*

In compliance with California Assembly Bill AB 2588, Moss Landing Power Plant performed a Power Plant Air Toxic Hot Spots Act risk assessment. All air exhaust discharges from the plant, including sandblasting activities, vents from oil tanks, etc., were evaluated. An inventory and assessment of risk to human health and contribution to air pollution problems were performed on the data. The Monterey Bay Unified Air Pollution Control District (APCD) has collected this data with information for the entire bay area.

Marine Mammal Center *(DENA only)*

DENA has agreed to allow the Marine Mammal Center to continue operation of a temporary holding facility at the plant. This facility is at the Unit 1-5 intake area. Marine mammals rescued in the Monterey Bay Area are brought to this facility for medical evaluation prior to transport to the Marine Mammal Center facility at the Marin Headlands in Marin County.

7. PROJECTS

The Moss Landing Power Plant Master Plan was first approved in October 1994. Amendments to the Master Plan were approved in January 1998 and September 1998. This section is divided into three sections: I) Approved Projects II) Projects Currently Under Consideration For Approval and III) Future Potential Projects

The extent of projects identified in Section I of this plan reflects DENA's and/or PG&E's best judgment regarding the improvements and other projects at the time of the approval. Some listed projects were in early planning stages at the time of approval and when fully designed, did not require coastal development permits. Other projects did require some type of permit (though not a coastal development permit) from the county and were included for information. This holds true for the projects in Section III. Section II list projects which DENA and/or PG&E are currently requesting approval from the county. Minor modifications of existing equipment and routine maintenance are ongoing to assure safe, reliable, and efficient operation of the plant. This project list does not address unanticipated projects, which may be required as a result of new or revised federal, state, or local mandates.

All projects will be designed in conformance with the policies and standards of the Moss Landing Community Plan, Monterey County Local Coastal Plan, Monterey County Coastal Implementation Plan and other local, state and federal regulations.

Project sites are identified in Figure 2.

I. Approved Projects

A. Projects Approved in October 1994

1. Plant Start-up Steam Supply **Permit: PC-95035**

Existing Conditions

During a facility start-up of either Unit 6 or Unit 7, an appreciable supply of steam is necessary to support numerous functions related to start-up operations. By design, the supply of start-up steam must be provided by a source external to the unit in start-up. The current facility configuration provides the ability to utilize the boilers dedicated to Units 1 through 3 in the production of those steam requirements.

The usage of start-up steam derived from these older boilers is currently essential for the reliable operation of Units 6 and 7. Unfortunately, these boilers are in excess of 40 years old and are at or nearing the end of their useful service life.

Project Description

Specific requirements are being evaluated for the replacement of the Units 1-3 boilers as a start-up steam supply source. Any steam source replacement is expected to address the siting and installation of a make-up steam supply boiler (package boiler). The boiler will most likely be gas-fueled and will be housed in a suitable enclosed structure.

Potential Impacts

Visual and other impacts will not be known until the project site and associated facilities have been selected.

Mitigation

Appropriate mitigation measures will be proposed once impacts, if any, have been identified.

Location

Undetermined

Schedule

Operational in 1996

2. Air Pollution Control Equipment

Existing Conditions

In order to meet NOx emission limits as specified in the Monterey Bay Unified Air Pollution Control District (MBUAPCD) Rule 431, equipment to limit NOx emission to 10 ppm is required to be installed on one unit (either Unit 6 or Unit 7) by December 31, 2000 and on the other unit by December 31, 2001. The MBUAPCD prepared and issued a Final Environmental Impact Report (December 1997) for proposed Rule 431, which is specifically for emissions from utility power boilers.

Project Description

The best available technology for reducing NOx emissions is Selective Catalytic Reduction (SCR) equipment at the economizer outlet of the boilers. DENA proposes to meet the conditions of Rule 431 by installing and operating SCR equipment on Unit 6 by December 31, 2000 and on Unit 7 by December 31, 2001. The project will entail extensive ductwork between the boiler and the stack for installation of the catalyst. The catalyst reactor vessel and associated ducting total height will be approximately 30 feet and will be located above the air preheater. The project also requires the installation of chemical reagent holding tanks in the tank farm near the oily water separator, a vaporization skid at ground level under the air preheater, replacement of the forced draft fans in their same location, and installation of two induced draft fans and associated ducting on both sides of the base of the stack.

Potential Impacts

Visual impacts will be minimal. The project may increase traffic to the plant by the chemical reagent transporter depending on the method of transportation used. Cranes which will likely be used during construction, may be seen from Dolan Road. Any other impacts will be determined once the project scope is clearly defined.

Mitigation

Appropriate mitigation measures will be proposed once impacts are identified.
As part of Rule 431, an environmental impact report was prepared by MBUAPCD. It is expected that an environmental impact report will not be required by DENA as part of this project.

Location

Unit 6, elevation 30' to 167' between the stack and the boiler
Unit 7, elevation 30' to 167' between the stack and the boiler

Schedule

Unit 6 construction in 1999 and 2000. Operational by December 31, 2000.
Unit 7 construction from 1999 – 2001. Operational by December 31, 2001.

3. Units 6 & 7 Grade 60 Offices/Control Room Remodel Permit: PC 05788

Existing Conditions

Unit operations functions for Units 6 and 7 are directed and controlled from the control room and a small foreman's office situated on Grade 60 of the boiler structure. These work areas are very much the same as they were in 1967-68 when the units were placed in service.

Project Description

Remodel and upgrade the control room and designated work areas on Grade 60. The upgrade will entail the installation of soundproofing, communications equipment, upgraded lighting and a general remodel of all workstations.

Potential Impacts

There are no visual impacts to the public associated with this project

Mitigation

None required

Location

Grade 60 of the Units 6 and 7 Boiler Structure

Schedule

1994

4. Remodel Chemistry Laboratory

Existing Conditions

The Chemistry Lab was installed in 1965 to perform plant cycle water chemistry analysis. As such, it was set up to perform titration and spectrophotometric analysis and some lube oil and fuel oil analysis. Today, the majority of lab activity has changed focus from plant cycle chemistry to environmental sampling and analysis, primarily analyzing trace contaminants and maintaining the associated paperwork. The type of equipment needed to perform these analyses, and to keep up on the plant water chemistry uses many more pieces of analytical equipment than was included in the original lab design. The current design of the lab does not allow sufficient counter space for the environmental analysis equipment.
Additionally, lab practices for hood operations have been modified in order to meet OSHA requirements for face velocity. While meeting the face velocity requirements, Chemists and Chemical Technicians must perform their analysis tasks under less than optimum conditions.

Project Description

As the environmental requirements on the plant increase, it has become more important to ensure that the Chemistry Lab be equipped to handle the additional requirements. Modification of the laboratory and the associated office space is needed in order to operate efficiently, improve productivity and maintain our current laboratory certification.

Potential Impacts

No impacts are anticipated in conjunction with this project.

Location

Administration Building, Second Floor

Schedule

1994

5. Harbor/Slough Erosion and Access Protection

Existing Conditions

Moss Landing Power Plant personnel use structures and equipment necessary for the Plant's operation at the shore line of both the Moss Landing Harbor and Elkhorn Slough . PG&E's property lines and easements at the shoreline of the harbor and slough extend beyond these structures/equipment To protect and provide safe access to these facilities, PG&E has historically maintained the shorelines within the property lines or easements.

Project Description

Maintenance on the harbor's and slough's shoreline is performed routinely on an as-needed basis. The majority of the maintenance is erosion control or corrective work, which usually follows a storm or bad weather. Maintenance consists of replacing, relocating or installing additional tidal zone erosion control protection. Occasionally, some back fill is needed. The objective is to insure the safety of its staff and the community, the protection of the environment and the protection of the structures and equipment.

Potential Impact

Work crews and equipment will be visible along the shore line while maintenance is in progress. The time frame of their presence would be from a few hours to a few weeks depending on the scope of the maintenance work. No perceivable or visible changes to the shore line are expected except in cases of extreme storm damage.

Locations

Along the east side of Moss Landing Harbor tidal zone from a point 300 feet south of the Units 6 & 7 cooling water intake structure to a point approximately 1500 feet north of the Plant's Units 1 through 5 cooling water intake structure.

Along a 100 foot wide PG&E easement for cooling water discharge tunnels from Units 6 & 7 that cross the Moss Landing Harbor

On DENA owned property on Sandholt Island in the vicinity of the plant's cooling water discharge tunnels.

Along a DENA easement for a fuel oil receiving line north of the Unit 1 through 5 intake structure and south of the Moss Landing Highway 1 Bridge.

Near the openings of Moss Landing Harbor and Elkhorn Slough where DENA maintains several sea curtain (boom) tie off points required for the Oil Spill Prevention and Containment Plan.

The area around the Units 1 through 5 cooling water system discharge structures along the south shore of Elkhorn Slough north of the plant.

Schedule

As needed.

6. Install Additional Groundwater Monitoring Wells

Existing Condition

The current groundwater monitoring wells were installed in the mid 1980s. Although they met permit conditions and regulations at the time, new regulations and interpretations have caused the California Department of Toxic Substance Control (DTSC) to issue an enforcement order that identifies the wells as deficient. In a meeting with DTSC, PG&E agreed to install four new monitoring wells, two new piezometer wells and to abandon three old monitoring wells.

Project Description

To fulfill the regulatory requirements from DTSC for the groundwater monitoring well system, two new downgradient monitoring wells and two background monitoring wells are required to be added to the areas around the Metal Cleaning Waste Ponds along with two new piezometer wells. Three of the old monitoring wells will be abandoned in accordance with legal and safety requirements.

Potential Impacts

There will be no impacts anticipated to other plant systems in conjunction with the project.

Location

In the area around the metal cleaning waste ponds.

Schedule

1994

7. Remodel Plant Restrooms (ADA)

Existing Conditions

The Americans with Disabilities Act (ADA) was signed into law on July 26, 1990. The ADA requires that we make existing facilities used by employees and the public readily accessible to and usable by individuals with disabilities.

Project Description

PG&E is currently evaluating how the ADA applies to Moss Landing Power Plant and will upgrade its facilities accordingly.

Potential Impacts

Impacts will not be known until the specific requirements are determined.

Mitigation

Appropriate mitigation measures will be proposed once impacts, if any, have been identified.

Location

Undetermined at this time

Schedule

1994-1995

8. Transmission System Maintenance & Construction Facility Permit: PC 98033

Existing Condition

Transmission system personnel from various departments are currently utilizing temporary facilities for office, operations, equipment and materials storage at various locations throughout the plant.

Project Description

Modular-type buildings are proposed to consolidate the various departmental activities into one complex. The plan for the M&C Facility also includes a metal sided (Butler type) shop building. The proposed building will be located upon an asphalt area outside the northeast corner of the 500 kV yard. The buildings will not be visible from Highway 1 or Dolan Road.

Potential Impacts

No adverse environmental impacts are anticipated as a result of the proposed consolidation.

Location

Northeast corner of the 500 kV yard, (the abandoned paint yard)

Schedule

Operational in 1994

9. Erect Protective Roof for Standby Feedpump LCI

Existing Conditions

Units 6 and 7 have an available backup feedwater pump which is a variable speed electric motor driven (DC) pump. Power for this pump is converted from alternating current to direct current as a matter of necessity in the design of large variable speed motors. Such

a conversion in electric current characteristics is made possible through the use of a load commutated inverter (LCI).

The LCI dedicated to the Units 6 & 7 Standby Feedpump is housed in a shelter intended to provide a controlled cool and dry environment, as is required for sensitive electrical equipment of this nature. The shelter itself, is very similar in size and proportion to a standard cargo container. It is supported by a large industrial style air conditioning system with all equipment and ductwork exposed to weather and environment.

The performance of this shelter and air conditioning system in mitigating moisture entry into the LCI has been poor during inclement weather conditions and has contributed to a diminished reliability for the LCI and the Standby Feedpump. This, in turn, has adversely effected the reliability of Units 6 and 7 since the availability of the electric driven feedpump is a critical backup and start-up feature in the operation of Units 6 and 7.

Project Description

PG&E proposes to design and erect a suitable roof structure that will provide positive protection of the LCI housing and air conditioning equipment against the impacts of wet and inclement weather.

Potential Impacts

The proposed roof structure will be visible from Highway 1 as allowed through the existing trees adjacent to the Highway 1 fence line.

Mitigation

The tree line that is adjacent to the Highway 1 fence will be maintained.

The height and profile of the proposed protective roof will be minimized as possible.

Location

North of the Units 6 & 7 Machine Shop.

Schedule

1995

B. Projects Approved in January 1998

1. Installation of Replacement 115 kV Switchyard Equipment Permit: PLN 970443 and Building a New Control Building

Existing Conditions

The current Moss Landing Power Plant property encompasses a number of operational facilities including the 115, 230 and 500 kV switchyards located east of Hwy 1 in the

northern portion of the site. The switchyards are critical links in the PG&E transmission system and supply approximately 80% of the electric power for the Central Coast Division, an area covering Hollister, Salinas, Monterey and Santa Cruz. Due to growth occurring in the Central Coast, Pacific Gas and Electric is planning to modify the 115 kV switchyard to provide better system reliability and to respond to the increased demand for electric power created by development/growth that is occurring in the Central Coast area.

Project Description

The 115 kV switchyard is located in the northwestern portion of the Moss Landing Power Plant site. The switchyard is not visible from the highway and is shielded from public view by a grove of trees and shrubs. Currently, the 115 kV switchyard encompasses an area approximately 350 feet by 760 feet in size. The capacity modification work entails mostly the replacement of old outdated electric transmission equipment/structures with newer more efficient operating equipment/structures. A new control building will be constructed to provide an environmental closure/weather protection and climate/temperature control for housing the sensitive electrical equipment, instrumentation panels, relays, and controls which monitor the voltage activity of the transformers and circuit breaker equipment in the 115 kV switchyard. All the work will be performed within the interior portion of the Plant site and predominately within the switchyard area. The planned modifications to the switchyard would entail the following work:

Existing Equipment	**New, Replacement**	**Disposition / Purpose**
Modify the connection to transformer Bank No. 1 - 230 kV		Transformer Bank No. 1 will be connected from a different 230 kV source.
Disconnect transformer bank 3	Install new 230/115 kV transformer bank 10.	This newer, more efficient transformer will replace transformer 3 and enable PG&E to respond to the over capacity demand on the 115 kV system and ensure operational safety.. Transformer Bank No. 3 will be disconnected and non-operational.
Remove one 115 kV oil circuit breaker.	Install one new 115 kV SF6 gas circuit breaker. Install two new 115 kV SF6 gas circuit breakers and two potential transformers.	The old breaker will be removed and replaced with greater current capacity breaker. One breaker is required as part of the new transformer bank operations, and the other breaker and two potential transformers are required as part of the safety and reliability operational requirements for the 115 kV switchyard.

Build a new unstaffed control building approximately 24 by 40 feet in size.	The new building provides an environmental enclosure and temperature/climate control structure for the new, sensitive electrical equipment, relays and controls related to the new transformer and circuit breakers. This equipment can not be accommodated in the existing control building inside the power plant. The new building would be an unstaffed.
Move part of the 115 kV and 230 kV switchyard's south fence approximately 101 feet south of the existing fence line and extending eastward by 713 feet.	Additional space is required to accommodate the minimum clearances required under CPUC General Order 95 for safety purposes related to the distances that must be maintained from equipment and facilities within the switchyard.
Install two steel poles for new transformer 115kV output.	The 115 kV feeds from the new transformer to the new circuit breaker.
Install four wood poles for Transformer Bank No. 1.	The poles will connect Transformer Bank No. 1 to the existing 230 kV source of Transformer Bank No. 3 which will be disconnected and non-operational.

Potential Impacts

The project is categorically exempt from CEQA under Section 15302 (c) and 15303 (e). No adverse impacts are anticipated as result of this project because the construction activity would be limited to areas of the substation property that have been previously disturbed. None of the equipment or the control building would be visible from HWY. 1. Additionally the new transformer would operate more efficiently and quieter than the older transformer. No traffic impacts are anticipated. Larger pieces of equipment will be delivered via rail. All construction related equipment, parking, staging, and lay down areas will be accommodated within the Plant site.

Mitigation

None required.

Location

The proposed modifications would take place in the 115 kV switchyard located n the northwestern portion of the site. Refer to the attached arrangement/site plan.

Schedule

Construction is anticipated to start January 1, 1998 and will be completed by September 1998.

C. Projects Approved in September 1998

1. Transmission System Maintenance & Construction Facility Fueling Facility — Permit: PC94110

Existing Conditions

The Moss Landing Power Plant property encompasses a number of operational facilities including offices for PG&E's Transmission System Maintenance and Construction staff. In late 1994, a permanent maintenance and construction facility composed of four modular offices and a metal shop building were installed within the Moss Landing Power Plant. This project was authorized under Coastal Development Permit PC94110. The facility functions as a headquarters for 30 PG&E employees where work crews are dispatched to local substations or along electric transmission lines for repair and maintenance work. In 1995, PG&E added an additional 24 foot by 40 foot modular office unit under CDP PC95033.

In response to the California deregulation of the electric industry, PG&E is currently selling several of its fossil fuel power plants including the Moss Landing power plant. PG&E has entered into a contract with Duke Energy Moss Landing LLC, a Delaware limited liability company (Buyer) to purchase the Moss Landing Power Plant. Close of the purchase is scheduled for June 30, 1998. While PG&E will not be the operator of the power plant generation facilities, PG&E will continue to own and operate the electrical switchyards and transmission line facilities exiting the power plant. Once the purchase has closed, the existing fueling station at the power plant will no longer be accessible by the PG&E staff.

Project Description

PG&E proposes to install a fueling station comprised of two (2) 2000 gallon aboveground "Convault" tanks at the Transmission System Maintenance and Construction Facility for fueling of PG&E vehicles. These UL listed tanks are designed with built-in secondary containment to minimize potential for leakage. A manufacturer's brochure is provided for your information. One tank will hold unleaded gasoline while the other will house diesel fuel. The tanks will be situated within an existing bermed swale located in an unpaved portion of the yard. Additional asphalting/concrete (approximately 22,000 sq. ft.) will also be installed around the swale for movement of vehicles. There will be no other modifications to operations or number of individuals staffed at this facility.

The dimensions of these tanks are approximately 11'x5 1/2'x 8' (height is 5 1/2').

Potential Impacts

The project is categorically exempt from CEQA under Section 15303. No adverse impacts are anticipated as a result of this project because the construction activity would be limited to areas of the property that have been previously disturbed. None of the equipment would be visible from Highway 1 or Dolan Road. No traffic impacts are anticipated, as there would be no change in the level of staffing at this facility.

Mitigation

None required.

Location

The proposed facility would be located adjacent to existing office complex authorized under Coastal Development Permit PC94110 and the 230 kV switchyard as shown on Figure 2 of this Master Plan.

Schedule

Installation of these facilities is tentatively scheduled to start July 15, 1998 and be completed by the first week of August, 1998.

II Projects Currently Under Consideration for Approval

1. Fuel Oil Tank Farm Demolition

Existing Condition

The power plant stopped burning fuel oil on January 1996 and is now fueled only by natural gas. There are 19 tanks on the property, which were used to store fuel oil. The plant no longer has a need for these tanks and associated equipment.

Project Description

DENA plans on removing all 19 fuel oil tanks, associated equipment, pipes and buildings and restore the site.

Potential Impacts

As part of the due diligence done prior to the sale of the plant by PG&E, it was confirmed that, with the exception of the area under the aboveground tanks, which could not be tested, all soil in the vicinity of the tanks was free of all contamination. Through the facility purchase agreement, once the tanks are removed PG&E is liable for assuring that all the soil and groundwater under each tank is free from contamination including consulting with all necessary agencies and obtaining all needed permits/approvals.

A biotic survey of the power plant area was conducted on February 1999. These studies concluded that no biological resources would be impacted. The California Department of

Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) did express concern regarding potential imparts to the Santa Cruz long-toes salamander (SCLTS and the legless salamander). No evidence was found that these species use the plant area as habitat, but the species has been reported in the surrounding area. Therefore, to assure that no impacts occur to SCLTS or a legless salamander DENA proposed and CDFG and USFWS accepted a construction monitoring program.

Removal of the fuel oil tanks will improve the visual impact of the Moss Landing facility.

Mitigation

None required.

Location

Tank Farm

Schedule

1999-2002

2. Replacement Generation

Existing Condition

Deregulation of the California electric generation market started in March 1998. This has brought about many changes in the electric market. One of the big changes is the way power is bought and sold. Power produced can be sold directly to customers or to the state public utility commission's power exchange (PX). The PX operates much like a stock market, serving as a non-profit clearinghouse for the purchase and sale of electricity. Power producers submit bids indicating the price of the power for their electricity. The PX then matches these bids with buyers who have submitted bids indicating the price they are willing to pay for electricity. This is promoting competition in the California electric market.

Project Description

DENA is proposing to add new generation technology that will modernize the Moss Landing power plant facility and replaces the energy generated by retired Units 1 through 5. The new generation supports local markets served by the existing electric transmission system and will use fuel supplied by PG&E's existing gas distribution system.

This project includes adding a new 1060-megawatts natural gas fueled, combined-cycle plant to the site. The capacity for Units 1-5 was 613 megawatts. Unit 6 and 7 capacity is 1500 megawatts. Combined capacity for Units 1-7 was 2113 megawatts. Combined plant capacity with the new generation will be 2590 megawatts.

The replacement generation:

- Will comply with the site's air regulations that have been set by the Monterey Bay Unified Air Pollution Control District.
- Will modify water intake structures that served units one through five, which were removed from service in the mid 1990s, and the discharge structures from units six and seven.
- Will be much smaller and quieter than units one through five or units six and seven.
- Will be located approximately 1,000 feet east of units six and seven.
- Will not require any additional natural gas transmission lines or electric transmission lines.
- Will cost approximately $475 million.
- Will provide voltage support and improve electrical service reliability for the Salinas Valley, Monterey, Santa Cruz, San Jose and Los Banos communities.

Once all the necessary regulatory and environmental requirements can be satisfied, it is expected that new generation will begin to operate in early 2002. The addition of new generation will enhance voltage support and reliability for the electric transmission system. The combination of existing generation with new generation also maximizes operational flexibility at the Moss Landing facility.

Potential Impacts

Siting new electric generation is under the jurisdiction of the California Energy Commission (CEC). It is believed at this time that the CEC preempts local jurisdiction. The CEC siting review is conducted in accordance with the California Environmental Quality Act (CEQA). Impacts upon environmentally sensitive habitats and seismic safety of the facility will be considered along with other important environmental resources as outlined in the CEQA guidelines. The CEC siting process has been certified as a functional equivalent process under CEQA. The project will be consistent with the Monterey County local coastal program.

Four stacks will be installed with the replacement generation plant. The height of the stacks will be approximately 140 feet which is about the same height of the transmission towers in the same area. The stacks will be located on Tank Farm Road between Tank 10 and Tanks 3 and 4. Visual impacts of the new stacks are minimal. To minimize visual impacts the eight stacks from Units 1-5 will be removed.

This project is consistent with the North County Land Use Plan due to the fact that this project is replacing the energy produced by Units 1-5. This project will not intensive the use of the facility and there for is consistent with the existing Master Plan.

Other specific impacts will not be known until the studies have been complete and the CEC staff assessment is complete.

Mitigation

Appropriate mitigation measures will be proposed once the impacts have been identified.

Location

Tank Farm

Schedule

An Application for Certificate was filed with the California Energy Commission in April of 1999. It is anticipated that a permit to construct will be issued by August 2000. Construction is anticipated starting in October 2000 with an in service date of summer 2002.

3. Energy Management Center

Existing Condition

The power plant is managed by a number of departments that require close communication. Among these are the plant management group, the operating department, generation trading and marketing, and others. Currently these departments are resident in separate geographic areas within the plant site. Operational efficiencies in generation planning, management, and operations will improve by moving these departments into one building.

Project Description

DENA proposes to construct a single office complex to house office space, additional generation control rooms, and computer hardware.

Potential Impacts

Specific impacts will not be known until project plans are in place.

Mitigation

Appropriate mitigation measures will be proposed once impacts, if any, have been identified.

Location

Potential site is where Tank #2 is currently located.

Schedule

Construction completed by July 2000.

4. Relocate the Oily Water Separator System

Existing Condition

The oily water separator system is currently located in the west fuel oil tank farm between tank 10 and tank 8. With the past plant operational changes and the potential future plant changes, this location is no longer a functional operating location for this system.

Project Description

This project will relocate the oily water separator so it is closer to the day to day plant operations.

Potential Impacts

There are no impacts anticipated in conjunction with this project.

Mitigation

None required.

Location

West fuel oil tank farm where fuel oil tank 2 is currently located.

Schedule

Operational by June 2000.

5. Relocate the Existing Marine Mammal Center

Existing Conditions

The marine mammal center currently uses the Unit 1-5 intake area to operate a temporary holding facility at the plant. Marine mammals rescued in the Monterey Bay Area are brought to this facility for medical evaluation prior to transport to the Marine Mammal Center facility at the Marin Headlands in Marin County. It is anticipated when the replacement generation is added to the site, the Unit 1-5 intake area will no longer be a viable location for the marine mammal center.

Project Description

Relocate the marine mammal center to the East Tank Farm area so plant operations do not interfere with the marine mammal center's operations.

Potential Impacts

There are no impacts anticipated in conjunction with this project.

Mitigation

None required.

Location

East Tank Farm.

Schedule

2000.

III. Future Potential Projects

1. Replace Hazardous Waste Surface Impoundments with an Above Ground Tank System

Existing Conditions

The plant currently has three EPA and California Regional Water Quality Control Board (RWQCB) NPDES permitted hazardous waste surface impoundments. Ponds #1 and #2 each have an estimated capacity of 850,000 gallons. Pond #3 has an estimated capacity of 377,000 gallons. Each pond is constructed of reinforced concrete and lined with three 80-mil high-density polyethylene and has two leachate detection, collection, and removal systems and a ground water detection, collection and removal system. The ponds are used to process the boiler fireside, air preheater and stacks waste water washes which removes ash and metal deposits. The ponds are also used to process the waterside of the boilers' chemically treated waste water which removes iron oxide and copper deposits from the tubes which accumulates during normal operations. Chemicals are then added to the ponds to drop the metals and suspended solids out of the water. When the wastewater meets the plant's NPDES requirements, it is discharged per the NPDES permit. The sludge is then processed through an onsite filter press and the filter press waste is sent to the appropriate landfill.

Project Description

DENA plans on replacing the three hazardous waste surface impoundments with an above ground tank system. The surface impoundments would then be closed and removed in accordance with the EPA and RWQCB requirements. The permitting of the above ground tank system would fall within the Monterey County jurisdiction.

Potential Impacts

No adverse impacts are anticipated as a result of this project. The removal of the surface impoundments will eliminate the risk of the wastewater in the surface impoundments from contaminating the ground water due to failure of the liners. The construction activity will be limited to areas of the power plant that have been previously disturbed. The above ground tank system will not be visible from Hwy 1 or Dolan Road. No traffic impacts are anticipated.

Mitigation

None required

Schedule

To be determined.

2. Replace Water Make-up System

Existing Condition

Units 6 and 7 each currently have a vapor compression evaporator, which are used to make distilled water from seawater. These evaporators were installed in 1987. The Unit 6 evaporator has deteriorated beyond use and is no longer operational. The Unit 7 evaporator is also rapidly reaching the end of its life and requiring extensive maintenance. Distilled water is necessary for plant operation.

Project Description

DENA proposes installing a new make-up water system to replace the existing evaporators. This system will provide reliable distilled water for plant operation. The type of equipment has not been selected at this time.

Potential Impacts

No adverse environmental impacts are anticipated as a result of this project.

Mitigation

Appropriate mitigation measures will be proposed once impacts, if any, have been identified.

Location

Undetermined at this time. Potential location is where the current Unit 6 evaporator is currently.

Schedule

2000-2001

3. Unit 1-5 Demolition

Existing Condition

Units 1-5 became uneconomical to operate and were retired in January 1995. Most of the unit equipment has been layed up in place.

Project Description

This project will include the removal of the boiler structure and associated equipment and/or the removal of equipment in the turbine building associated with Units 1-5.

Potential Impacts

Specific impacts will not be known until project plans are in place.

Mitigation

Appropriate mitigation measures will be proposed once impacts, if any, have been identified.

Location

Units 1-5

Schedule

To be determined

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APPENDIX A

MOSS LANDING
POWER PLANT SITE MASTER PLAN

BIOLOGICAL RESOURCES

Prepared by:
Pacific Gas and Electric Company
Technical and Ecological Services
San Ramon, California
February 1994

APPENDIX A
MOSS LANDING POWER PLANT SITE MASTER PLAN

BIOLOGICAL RESOURCES

1.0 PURPOSE

This report describes the vegetation and wildlife, threatened, endangered and candidate species, and sensitive natural communities found within 1/2 mile of the boundary of the fee property surrounding Moss Landing Power Plant. The information presented is based on a literature search and review of aerial photographs.

2.0 INTRODUCTION

Moss Landing Power Plant is located between two ecologically important estuarine systems. To the north is Elkhorn Slough, to the south is Moro Cojo Slough. These sloughs are important habitats for a number of threatened and endangered species of plants and animals. West of the power plant these two sloughs join and form Moss Landing Harbor. The harbor provides facilities for about 300 commercial fishing and pleasure boats. The gently rolling uplands surrounding the estuaries are used principally for row crops (artichokes, cole crops, beans, lettuce, melons, and sugar beets), irrigated pasture and dairy operations, and residential housing (Browning 1972).

3.0 VEGETATION TYPES

Figure A-1 shows the vegetation types in the study area. Non-native grassland is the dominate vegetation community within the PG&E fee property. The property contains little habitat necessary for the survival of the threatened and endangered species that potentially occur in the area. A remnant parcel of marsh is located between the east set and west set of fuel tanks.

A small parcel of coastal dune habitat is located on the west side of Moss Landing Harbor. Within this coastal strand community stabilizing vegetation is sparse. Lupine (*Lupinus* spp.), yellow sand verbena (*Abronia latifolia*) and a number of grass species exist in this community.

The northern boundary of the parcel containing the power plant runs nearly adjacent to Elkhorn Slough. This slough is one of the few relatively undisturbed coastal wetlands remaining in California. Approximately 10% of Elkhorn Slough consists of open water or channels, 20% is mudflat, 50% is salt marsh, and the remainder consists of dunes, beaches and salt ponds (Browning 1972). Vegetation along the edge of the slough is predominately pickleweed (*Salicornia virginica*) and saltgrass (*Distichlis spicata*). A narrow band of trees separates this area of the salt marsh from the upland area near the fee property. The upland area is predominately grassland. Northeast of the plant, and north of the eastern set of fuel tanks is a large parcel of agricultural land. Map 1 shows the wetland habitats of Elkhorn Slough.

PG&E land east of the Southern Pacific Railway and north of Dolan Road is dominated by non-native grassland. Further north is Parson's Slough, a part of the Elkhorn Slough National Estuarine Sanctuary. The National Estuarine Sanctuary is characterized by uplands of oak and grasslands, salt marsh, mud flats, and open water. The Sanctuary is managed by the California Department of Fish and Game with guidance from the National Oceanic and Atmosphere Administration and a Sanctuary Advisory Committee.

West of the Southern Pacific Railway and south of Dolan Road is Moro Cojo Slough. Moro Cojo Slough is much smaller than Elkhorn Slough and consists of more freshwater marsh (ABA 1988). Map 2 shows the wetland habitats of Moro Cojo Slough.

Lands east of the Southern Pacific Railway and south of Dolan Road are primarily residential and agricultural.

Plant species potentially occurring in the vicinity of the Moss Land Power Plant are listed in Tables 1 and 2.

4.0 WILDLIFE

Most of the wildlife species in the vicinity of the Moss Landing Power Plant are those dependent on the tidal and freshwater marshes of Elkhorn and Moro Cojo sloughs. These habitats as well as the adjacent grasslands support numerous wildlife species (Tables 1 and 2). Over 400 species of invertebrates, 29 species of reptiles and amphibians, 200 species of birds, and 59 species of mammals have been identified from the vicinity of Elkhorn Slough.

5.0 THREATENED AND ENDANGERED SPECIES

A list of threatened, endangered and candidate species including status, is presented in Table 3. This list was generated through the California Natural Diversity Data Base.

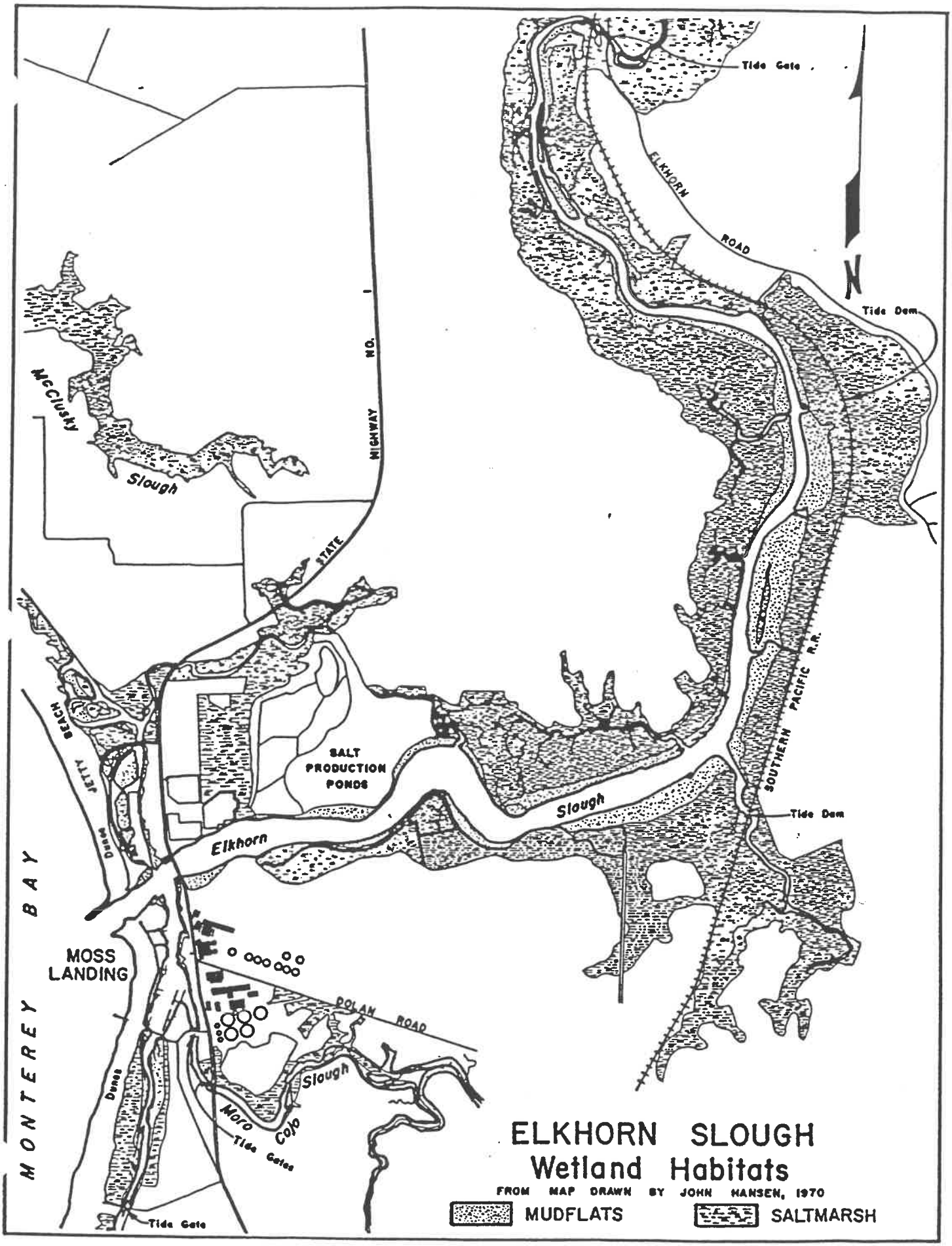
6.0 SENSITIVE NATURAL COMMUNITIES

Sensitive natural communities are unique assemblages of biotic diversity. They tend to provide the habitat necessary for the survival of many of California's threatened and endangered species. Both Northern Coastal Salt Marsh and Coastal Brackish Marsh are found in the vicinity of the Moss Landing Power Plant.

The Northern Coastal Salt Marsh found in Elkhorn Slough is dominated by pickleweed, which accounts for more than 90 % of the plant cover (ABA 1989). It provides habitat for the California clapper rail, western snowy plover, and the Santa Cruz long-toed salamander.

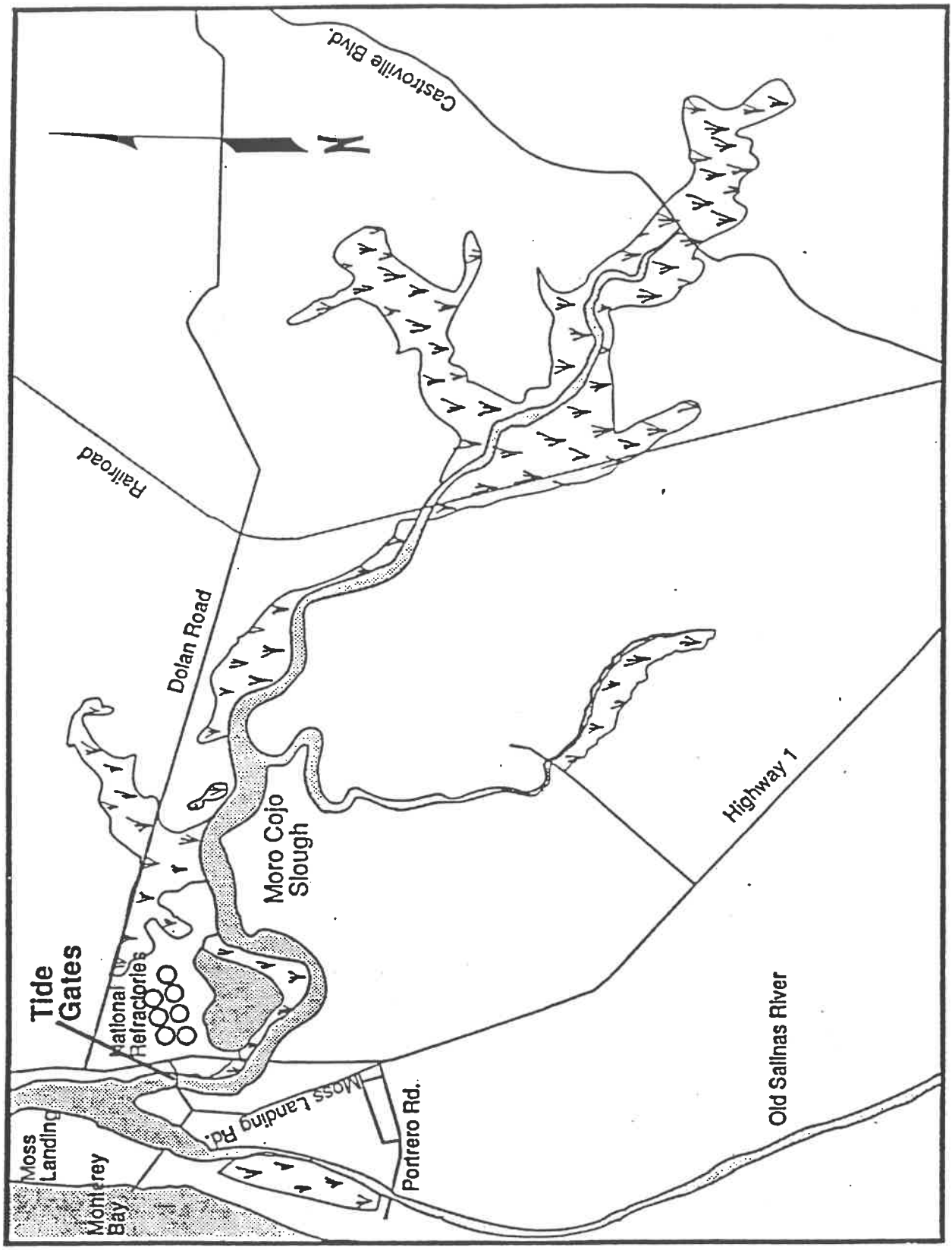
The Coastal Brackish Marsh found in Moro Cojo Slough is dominated by bulrush (*Scirpus* spp.), cattails (*Typha* spp.), rushes (*Juncus* spp.), and pickleweed. This marsh provides habitat for the California brackishwater snail as well as the California clapper rail, western snowy plover, and the Santa Cruz long-toed salamander.

Map 1



Source: Browning, 1972

Map 2



Source: ABA Consultants, 1988

The present wetland habitat in Moro Cojo Slough.

Wetland

SPECIES LISTS

List of species found along Elkhorn Slough and its immediate environs, including adjacent beach and upland habitat.

VASCULAR PLANTS[1]

Abronia latifolia
Yellow Sand Verbena
Achillea borealis
Common Yarrow
Adenostoma fasciculatum
Chamise
Alisma plantago-aquatica
Water-Plantain
Allocarya chorisiana hickmanii
Hickman's Allocarya
Amsinckia spectabilis
Seaside Amsinckia
Amsinckia sp.
Fiddleneck
Anagallis arvensis
Scarlet Pimpernel
Anthemis sp.
Dog Fennel
Arabis sp.
Rock Cress
Arbutus menziesii
Madrone
Arctostaphylos hookeri
Hooker's Manzanita
Arctostaphylos pajaroensis
Pajaro Manzanita
Arctostaphylos tomentosa
Brittleleaf Manzanita
Artemisia californica
California Sage
Artemisia douglasiana
Douglas' Mugwort
Asclepias eriocarpa
Indian Milkweed
Aster chilensis
Common California Aster
Astragalus nuttallii
Coastal Dunes Nettleweed
Atriplex patula hastata
Fat Hen
Atriplex semibaccata
Australian Saltbush
Avena barbata
Slender Wild Oat
Avena fatua
Wild Oat
Baccharis pilularis
Coyote Brush
Baccharis douglasii
Salt Marsh Baccharis
Baccharis viminea
Mule Fat
Beta vulgaris
Wild Beet
Brassica campestris
Common Field Mustard
Brassica nigra
Black Mustard
Briza minor
Little Quaking Grass
Brodiaea pulchella
Blue Dicks
Bromus mollis
Soft Chess
Bromus rigidus
Ripgut Grass
Cakile maritima
Sea Rocket
Carex brevicaulis
Short-stemmed Sedge
Carex sp.
Sedge
Cardamine oligosperma
Few-seeded Bitter Cress
Castilleja foliolosa
Wholly Painted Cap
Castilleja latifolia
Monterey Paintbrush
Castilleja sp.
Indian Paintbrush
Ceanothus dentatus
Dwarf Ceanothus
Ceanothus griseus
Carmel Ceanothus
Ceanothus rigidus albus
White Ceanothus
Ceanothus thyrsiflorus
Blue-blossom
Chenopodium ambrosioidea
Mexican Tea
Chenopodium macrospermum
Coast Goosefoot
Chenopodium rubrum
Red Goosefoot
Chlorogalum pomeridianum
Soap Root
Cichorium intybus
Chickory
Cirsium californicum
California Thistle
Cirsium occidentale
Cobweb Thistle
Cirsium vulgare
Bull Thistle
Conium maculatum
Poison Hemlock
Convolvulus occidentalis
Beach Morning-glory
Conyza canadensis
Horseweed
Corethrogyne sp.
Corethrogyne
Cortaderia jubata
Pampas Grass
Corylus californica
Hazelnut
Cotula coronopifolia
Brass Buttons
Cressa truxillensis vallicola
Alkali Weed
Cupressus macrocarpa
Monterey Cypress
Cuscuta salina
Salt Marsh Dodder
Cynodon sp.
Bermuda Grass
Cyperus egarostis
Tall Cyperus
Cyperus sp.
Umbrella Sedge
Danthonia californica
California Oat Grass
Dendromecon rigida
Tree Poppy
Distichlis spicata
Salt Grass
Dryopteris arguta
Coastal Wood Fern
Dudleya farinosa
Live-forever
Eleocharis sp.
Spike-rush
Elymus mollis
American Dune Grass
Elymus triticoides
Alkali Rye Grass
Epilobium sp.
Fireweed
Erechtites arguta
Cut-leaved Coast Fireweed
Ericameria aricoides
Mock Heather
Ericameria fasiculata
Mock Heather
Eriogonum latifolium nudum
Wild Buckwheat

Source: ABA Consultants, 1989.

Eriogonum nudum
Naked-stemmed Eriogonum
Eriophyllum confertiflorum
Golden Yarrow
Erodium botrys
Long-beaked Filaree
Erodium moschatum
White-stemmed Filaree
Eryngium sp.
Coyote Thistle
Eschscholzia californica
California Poppy
Eucalyptus globosus
Blue Gum
Festuca myuros
Rattail Fescue
Festuca sp.
Fescue
Foeniculum vulgare
Sweet Fennel
Fragaria californica
California Strawberry
Frankenia grandifolia
Alkali Heath
Franseria chamissonis
Beach-bur
Galium aparine
Goose Grass
Galium californicum
California Bedstraw
Galium nuttallii
Climbing Bedstraw
Garrya elliptica
Coast Silk-tassel
Geranium dissectum
Cut-leaved Geranium
Geranium molle
Cranesbill
Gnaphalium californicum
California Everlasting
Gnaphalium purpureum
Cudweed
Grindelia humilis
Marsh Grindelia
Grindelia latifolia
Gum Plant
Helenium puberulum
Sneezeweed
Heleocharis sp.
Spike-rush
Helianthella sp.
Helianthella
Helianthemum scoparium
Rock-rose
Heliotropium curassavicum
Seaside Heliotrope
Heterotheca grandiflora
Telegraph Weed
Holocarpha macradenia
Santa Cruz Tarplant
Holodiscus discolor
Cream Bush
Hordeum geniculatum
Mediterranean Barley
Horkelia cuneata
Wedge-leaved Horkelia
Hordeum leporinum
Farmer's Foxtail
Hydrocotyle sp.
Marsh Pennywort
Hypochaeris radicata
Hairy Cat's Ear
Iris douglasiana
Douglas' Iris
Iris longipetala
Long-petaled Iris
Iris pseudocorus
Yellow Iris
Jaumea carnosa
Fleshy Jaumea
Juglans sp.
Walnut
Juncus bufonius
Toad Rush
Juncus effusus pacificus
Pacific Bog Rush
Juncus lesuerii
Salt Rush
Juncus patens
Common Rush
Juncus phaeocephalus
Brown-headed Rush
Juncus xiphioides
Iris-leaved Rush
Lasthenia glabrata
Yellow-rayed Lasthenia
Lathyrus jepsonii californicus
Wild Pea
Lavatera cretica
Tree Mallow
Lemna sp.
Duckweed
Leptospermum sp.
Australian Tea Tree
Lilaea scilloides
Flowering Quillwort
Limonium californicum
Sea Lavender
Linaria canadensis
Toad Flax
Lobularia maritima
Sweet Alyssum
Lolium multiflorum
Italian Ryegrass
Lolium perenne
Perennial Ryegrass
Lomatium dasycarpum
Lace Parsnip
Lonicera involucrata
Twinberry
Lotus corniculatus
Bird's Foot Trefoil
Lotus formosissimus
Coast Trefoil
Lotus scoparius
Deerweed
Lotus subpinnatus
Chile Trefoil
Lupinus albifrons
Silver Lupine
Lupinus aboreus
Yellow Beach Lupine
Lupinus bicolor
Lindley's Annual Lupine
Lupinus chamissonis
Blue Beach Lupine
Lupinus nanus
Sky Lupine
Lupinus succulentus
Succulent Annual Lupine
Lupinus sp.
Lupine
Lythrum hyssopifolia
Hyssop Loosestrife
Madia sp.
Tarweed
Malva parvifolia
Cheeseweed
Malva sp.
Mallow
Marah fabaceus
Common Manroot
Marah sp.
Wild Cucumber
Marrubium vulgare
Horehound
Medicago hispida
Bur Clover
Medicago polymorpha vulgaris
Yellow Bur-clover
Metilotus albus
White Sweet Clover
Melilotus indicus
Yellow Sweet Clover
Mentha pulegium
Pennyroyal
Mesembryanthemum chilense
Sea Fig
Mesembryanthemum edule
Hottentot Fig
Mesembryanthemum nodiflorum
Slender-leaved Iceplant
Mimulus guttatus
Large Monkeyflower
Mimulus aurantiacus
Sticky Monkeyflower
Monardella villosa
Coyote Mint
Montia perfoliata
Miner's Lettuce

Source: ABA Consultants, 1989

Myrica californica
California Wax Myrtle
Nasturtium officinale
Water Cress
Navarretia intertexta
Navarretia
Navarretia squarrosa
Skunkweed
Oenanthe sarmentosa
Pacific Oenanthe
Oenothera micrantha
Primrose
Oenothera ovata
Sun Cups
Orthocarpus densiflorus
Owl's Clover
Orthocarpus erianthus
Butter and Eggs
Orthocarpus pusillus
Dwarf Orthocarpus
Oxalis pes-caprae
Bermuda Buttercup
Oxalis sp.
Wood Sorrel
Parapholis incurva
Sickle Grass
Paspalum dilatatun
Dallis Grass
Pedicularis densiflora
Indian Warrior
Pellaea mucronata
Bird's Foot Fern
Phalaria tuberosa stenoptera
Harding Grass
Photinia arbutifolia
Toyon
Picris echioides
Bristly Ox Tongue
Pinus radiata
Monterey Pine
Pityogramma triangularis
Goldenback Fern
Plantago bigelowii
Annual Plantain
Plantago coronopus
Cut-leaved Plantain
Plantago erecta
California Plantain
Plantago heterophylla
Plantain
Plantago hirtella galeottiana
Mexican Plantain
Plantago lanceolata
Ribwort
Plantago major
White Man's Foot
Plantanus racemosa
Sycamore
Poa annua
Annual Bluegrass
Polygala californica
California Milkwort
Polygonum aviculare
Dooryard Knotweed
Polygonum coccineum
Swamp Knotweed
Polygonum persicaria
Lady's Thumb
Polygonum punctatum
Water Smartweed
Polypodium californicum
Resurrection Fern
Polypogon monspeliensis
Rabbit's Foot Grass
Potentilla egedii grandis
Pacific Silverweed
Pteridium aquilinum
Bracken Fern
Quercus agrifolia
Calfiornia Live Oak
Ranunculus sp.
Buttercup
Raphanus sativus
Wild Radish
Rhamnus californica
Coffeeberry
Rhus diversiloba
Poison Oak
Ribes divaricatum
Straggly Gooseberry
Rosa californica
California Rose
Rubus ursinus
California Blackberry
Rumex acetosella
Sheep Sorrel
Rumex conglomeratus
Green Dock
Rumex crispus
Curley Dock
Rumex sp.
Dock
Ruppia maritima
Ditch Grass
Salicornia virginica
Pickleweed
Salix lasiolepis
Arroyo Willow
Salix sp.
Willow
Salsola kali tenuifolia
Russian Thistle
Salvia mellifera
Black Sage
Sambucus mexicana
Blue Elderberry
Sanicula crassicaulis
Gambleweed
Satureja douglasii
Yerba Buena
Scirpus acutus
Giant Bulrush
Scirpus californicus
California Bulrush
Scirpus microcarpus
Panicled Bulrush
Scirpus olneyi
Olney's Bulrush
Scirpus robustus
Prarie Bulrush
Scrophularia california
California Figwort
Scutellaria tuberosa
Danie's Skull Cap
Scrophularia californica
California Bee Plant
Selaginella bigelovi
Bigelow's Club Moss
Senecio vulgaris
Common Groundsel
Senecio mikanioides
German Ivy
Sidalcea malviflora
Checkera
Silybum marianum
Milk Thistle
Sisyrinchium bellum
Blue-eyed Grass
Solanum nodiflorum
Black Nightshade
Solanum umbelliferum
Blue Witch
Solanum sp.
Nightshade
Solidago sp.
Goldenrod
Sonchus oleraceus
Common Sow Thistle
Sonchus sp.
Sow Thistle
Sparganium eurycarpum
Broad-fruited Burreed
Spergularia marina
Salt-marsh Sand Spurry
Stachys bullata
Hedge Nettle
Stellaria media
Common Chickweed
Stipa cernua
Needlegrass
Stipa pulchra
Nodding Stipa
Suaeda californica
California Sea-Blite
Symphoricarpos sp.
Snowberry
Taraxacum oficinale
Common Dandelion
Tillaea erecta
Pigmyweed

Source: ABA Consultants, 1989

Trifolium angustifolium
Narrow-leaved Clover
Triflolium incarnatus
Crimson Clover
Trifolium sp.
Clover
Triglochin concinna
Slender Arrow Grass
Triglochin maritima
Seaside Arrow Grass
Trillim ovatum
Wake Robin
Typha angustifolia
Narrow-leaved Cat-tail
Typha latifolia
Broad-leaved Cat-tail
Typha sp.
Cattail
Urtica holosericea
Stinging Nettle
Urtica urens
Dwarf Nettle
Vaccinium ovatum
California Huckleberry
Verbena lasiostachys
Western Verbena
Vinca major
Periwinkle
Viola pedunculata
Johnny Jump-up
Xanthium spinosum
Spiny Clotbur
Xanthium strumarium
Cocklebur
Zantedeschia aethiopica
Calla Lily
Zauschneria californica
California Fuchsia
Zigadenus fremontii
Star Lily
Zostera marina
Eelgrass

AMPHIBIANS[2]

SALAMANDERS

Aneides lugubris
Arboreal Salamander
Ambystoma macrodactylum croceum
Santa Cruz Long-toed Salamander
Ambystoma tigrinum californiense
California Tiger Salamander
Batrachoseps pacificus
Pacific Slender Salamander
Ensatina eschscholtzii
Monterey Salamander
Taricha torosa torosa
Coast Range Newt

FROGS AND TOADS

Bufo boreas halophilus
California Toad
Hyla regilla
Pacific Treefrog
Rana aurora draytonii
California Red-legged Frog
Rana boylii
Foothill Yellow-legged Frog
Rana catesbeiana
Bullfrog

REPTILES[2]

TURTLES

Clemmys marmorata marmorata
Southwestern Pond Turtle

LIZARDS

Anniella pulchra nigra
Black Legless Lizard
Eumeces skiltonianus skiltonianus
Northwestern Fence Lizard
Gerrhonotus coeruleus coeruleus
San Francisco Alligator Lizard
Gerhonotus multicarinatus multicarinatus
California Alligator Lizard
Phrynosoma coronatum
Coast Horned Lizard
Sceloporus occidentalis occidentalis
Northwestern Fence Lizard

SNAKES

Charina bottae bottae
Pacific Rubber Boa
Coluber constrictor mormon
Western Yellow-bellied Racer
Contia tenuis
Sharp-tailed Snake
Crotalus viridis oreganus
Northern Pacific Rattlesnake
Diadophus punctatus vandenburghi
Monterey Ringneck Snake
Lampropeltis getulus californiae
California Kingsnake

Masticophis lateralis lateralis
Alameda Whipsnake
Pituophis melanoleucus catenifer
Pacific Gopher Snake
Thamnophis couchi atratus
Santa Cruz Garter Snake
Thamnophis elegans terrestris
Coast Garter Snake
Thamnophis sirtalis parietalis
Red-sided Garter Snake

BIRDS[3]

LOONS

Arctic Loon
Common Loon
Red-throated Loon
Yellow-billed Loon

GREBES

Eared Grebe
Horned Grebe
Pied-billed Grebe
Red-necked Grebe
Western Grebe

TUBENOSES

Black-footed Albatross
Laysan Albatross
Northern Fulmar
Ashy Storm Petrel
Black Storm Petrel
Fork-tailed Storm Petrel
Galapagos Storm Petrel
Leach's Storm Petrel
Least Storm Petrel
Wilson's Storm Petrel
Buller's Shearwater
Fresh-footed Shearwater
Manx Shearwater
Pink-footed Shearwater
Short-tailed Shearwater
Sooty Shearwater
Streaked Shearwater

PELICANS CORMORANTS

Brandt's Cormorant
Double-crested Cormorant
Pelagic Cormorant
Magnificent Frigatebird
American White Pelican
Brown Pelican
Red-billed Tropicbird

HERONS

American Bittern
Black-crowned Night Heron
Cattle Egret
Great Blue Heron
Great Egret
Green Heron
Least Bittern
Reddish Egret

Source: ABA Consultants, 1989

Snowy Egret

IBISES, SPOONBILLS
American Flamingo
Roseate Spoonbill
White-faced Ibis

WATERFOWL
Whistling Swan
Canada Goose
Brant
Emperor Goose
Greater White-fronted Goose
Snow Goose
Ross' Goose
Mallard
Gadwall
Common Pintail
Green-winged Teal
Blue-winged Teal
Cinnamon Teal
American Wigeon
Northern Shoveler
Wood Duck
Redhead
Ring-necked Duck
Canvasback
Greater Scaup
Lesser Scaup
Common Goldeneye
Barrow's Goldeneye
Bufflehead
Oldsquaw
Harlequin Duck
King Eider
White-winged Scoter
Surf Scoter
Black Scoter
Ruddy Duck
Fulvous Tree Duck
Hooded Merganser
Common Merganser
Red-Breasted Merganser

HAWKS
Turkey Vulture
Black-shouldered Kite
Sharp-shinned Hawk
Cooper's Hawk
Red-tailed Hawk
Harlan's Hawk
Red-shouldered Hawk
Swainson's Hawk
Rough-legged Hawk
Ferruginous Hawk
Golden Eagle
Bald Eagle
Northern Harrier
Osprey
Prarie Falcon
Peregrine Falcon
Merlin
American Kestrel

QUAIL, PHEASANT
California Quail
Ring-necked Pheasant

RAILS, COOTS
Clapper Rail
Virginia Rail
Sora
Common Gallinule
American Coot

SHOREBIRDS
Black Oystercatcher
Black-necked Stilt
American Avocet
Semipalmated Plover
Killdeer
Snowy Plover
Lesser Golden Plover
Black-bellied Plover
Mountain Plover
Marbled Godwit
Whimbrel
Long-billed Curlew
Greater Yellowlegs
Lesser Yellowlegs
Willit
Wandering Tattler
Ruddy Turnstone
Black Turnstone
Wilson's Phalarope
Northern Phalarope
Red Phalarope
Common Snipe
Short-billed Dowicher
Long-billed Dowicher
Surfbird
Red Knot
Sanderling
Western Sandpiper
Least Sandpiper
Baird's Sandpiper
Pectoral Sandpiper
Solitary Sandpiper
Semipalmated Sandpiper
Sharp-tailed Sandpiper
Rock Sandpiper
Buff-breasted Sandpiper
Spotted Sandpiper
Dunlin
Stilt Sandpiper
Ruff

GULLS
Pomarine Jaeger
Parasitic Jaeger
Long-tailed Jaeger
South Polar Skua
Glaucous Gull
Glaucous-winged Gull
Western Gull
Herring Gull
Thayer's Gull
California Gull
Ring-billed Gull
Mew Gull
Franklin's Gull
Bonaparte's Gull
Heermann's Gull
Laughing Gull
Little Gull
Sabine's Gull
Black-legged Kittiwake
Forster's Tern
Common Tern
Artic Tern
Least Tern
Royal Tern
Elegant Tern
Caspian Tern
Black Tern
Black Skimmer

AUKS, MURRES
Common Murre
Pigeon Guillemot
Marbled Murrelet
Ancient Murrelet
Craveri's Murrelet
Xantu's Murrelet
Cassin's Auklet
Rhinoceros Auklet

PEGEONS, DOVES
Band-tailed Pigeon
Rock Dove
Mourning Dove

CUCKOOS
Roadrunner
Yellow-billed Cuckoo

OWLS
Barn Owl
Great Horned Owl
Burrowing Owl
Short-eared Owl
Snowy Owl

NIGHTHAWKS
Lesser Nighthawk

SWIFTS, HUMMINGBIRDS
Vaux's Swift
White-throated Swift
Anna's Hummingbird
Rufous Hummingbird

Source: ABA Consultants, 1989

Allen's Hummingbird
Calliope Hummingbird
Black-chinned Hummingbird

KINGFISHERS
Belted Kingfishers

WOODPECKERS
Common Flicker
Acorn Woodpecker
Yellow-bellied Sapsucker
Hairy Woodpecker
Downy Woodpecker
Nuttall's Woodpecker

FLYCATCHERS
Tropical Kingbird
Western Kingbird
Cassin's Kingbird
Ash-Throated Flycatcher
Black Phoebe
Say's Phoebe
Western Flycatcher
Western Peewee
Willow Flycatcher
Gray Flycatcher
Olive-sided Flycatcher

LARKS
Horned Lark

SWALLOWS
Violet-Green Swallow
Tree Swallow
Rough-winged Swallow
Bank Swallow
Barn Swallow
Cliff Swallow
Purple Martin

JAYS, CROWS
California Jay
Yellow-billed Magpie
American Crow

CHICKADEES, BUSHTITS
Chestnut-backed Chickadee
Plain Titmouse
Bushtit

WRENTIT

NUTHATCHES,CREEPERS
White-breasted Nuthatch
Red-breasted Nuthatch
Pygmy Nuthatch
Brown Creeper

WRENS
House Wren
Winter Wren
Bewick's Wren
Long-billed Marsh Wren

MOCKINGBIRDS, THRASHERS
Northern Mockingbird
California Thrasher

THRUSHES
American Robin
Varied Thrush
Hermit Thrush
Swainson's Thrush
Western Bluebird
Townshend's Solitaire

KINGLETS, GNATCATCHERS
Ruby-crowned Kinglet
Golden-crowned Kinglet
Blue-gray Gnatcatcher

WATER PIPIT
CEDAR WAXWING
LOGGERHEAD SHRIKE
EUROPEAN STARLING

VIREOS
Hutton's Vireo
Red-eyed Vireo
Warbling Vireo

WARBLERS
Orange-crowned Warbler
Nashville Warbler
Yellow Warbler
Yellow-rumped Warbler
Black-throated Gray Warbler
Townshend's Warbler
Northern Waterthrush
Common Yellowthroat
Wilson's Warbler
Magnolia Warbler
Hermit Warbler
Blackpoll Warbler
Palm Warbler
MacGillivray's Warbler
Yellow-breasted Chat
American Redstart

HOUSE SPARROW

BLACKBIRDS, ORIOLES
Western Meadowlark
Yellow-headed Blackbird
Red-winged Blackbird
Tricolored Blackbird
Brewer's Blackbird
Brown-headed Cowbird
Northern Oriole

WESTERN TANAGER

FINCHES, SPARROWS
Black-headed Grosbeak
Evening Grosbeak
Purple Finch
House Finch
Pine Siskin
American Goldfinch
Lesser Goldfinch
Lawrence's Goldfinch
Rufous-sided Towhee
Brown Towhee
Oregon Junco
Savannah Sparrow
Brewer's Sparrow
White-crowned Sparrow
Fox Sparrow
Lincoln's Sparrow
Swamp Sparrow
Song Sparrow
Lark Sparrow
Chipping Sparrow
Lazuli Bunting
Lapland Longspur
Chestnut-collared Longspur

MAMMALS[2]

MARSUPIALS

Didelphis marsupialis
Opossum

INSECTIVORES

Nurotrichus gibbsi
Shrew Mole
Scapanus latimanus
California Mole
Sorex ornatus
Ornate Shrew
Sorex trowbridgei
Trowbridge Shrew
Sorex vagrans
Vagrant Shrew

BATS

Antrozous pallidus
Pallid Bat
Eptesicus fuscus
Big Brown Bat
Lasiurus borealis

Source: ABA Consultants, 1989

Red Bat
Lasiurus cinereus
Hoary Bat
Myotis californica
California Myotis
Myotis evotis
Long-eared Myotis
Myotis leibii
Small-footed Myotis
Myotis lucifugus
Little Brown Myotis
Myotis thysanodes
Fringed Myotis
Myotis volans
Long-legged Myotis
Myotis yumanensis
Yuma Myotis
Pipustrellus hesperus
Western Pipistrel
Plecotus townsendi
Western Big-eared Bat
Tadarida brasiliensis
Brazilian Free-tailed Bat

CARNIVORES

Bassariscus astutus
Ringtail
Canis latrans
Coyote

Enhydra lutris
Sea Otter
Felis concolor
Mountain Lion
Lynx rufus
Bobcat
Mephitis mephitis
Striped Skunk
Mustela frenata
Longtail Weasel
Procyon lotor
Raccoon
Spilogale putorius
Spotted Skunk
Taxidea taxus
Badger
Urocyon cinereoargenteus
Gray Fox
Vulpes Fulva
Red Fox

PINIPEDS

Phoca vitulina
Harbor Seal
Zalophus californianus
California Sea Lion

RODENTS

Castor canadensis
Beaver
Dipodomys heermanni
Heermann Kangaroo Rat
Dipodomys venustus
Santa Cruz Kangaroo Rat
Microtus californicus
California Vole
Mus musculus
House Mouse
Neotoma fuscipes
Dusky-footed Wood Rat
Ondatra zibethica
Muskrat
Perognathus californicus
California Pocket Mouse
Peromyscus californicus
California Mouse
Peromyscus maniculata
Deer Mouse
Peromyscus truei
Piñon Mouse
Rattus norvegicus
Norway Rat
Rattus rattus
Black Rat
Reithrodontomys megalotis
Western Harvest Mouse
Sciurus carolinensis
Eastern Gray Squirrel
Sciurus griseus
Western Gray Squirrel
Scirus niger
Fox Squirrel
Spermophilus beecheyi
California Ground Squirrel
Thomomys bottae
Valley Pocket Gopher

HARES and RABBITS

Lepus californicus
Blacktail Jackrabbit
Sylvilagus audubonii
Audubon Cottontail
Sylvilagus bachmani
Brush Rabbit

UNGULATES

Odocoileus hemionus
Blacktail Deer

CETACEANS

Eschrichtius robustus
Gray Whale
Phocoena phocoena
Harbor Porpoise

[1]Compiled from: Harvey and Stanley Associates (1985), King and Griffin (1983), Schettler (1985).
[2]From Schafer (1986).
[3]From Ramer, Ramer, and Warriner (1978)

Source: ABA Consultants, 1989

TABLE 2
SPECIES LIST

Plant and Animal Species observed or likely to occur in the lower Moro Cojo Slough wetlands habitats.

VASCULAR PLANTS

Common Names	Scientific Names
Scarlet Pimpernel	Anagallis arvensis
Fat Hen	Atriplex patula hastata
Australian Saltbush	Atriplex semibaccata
Wild Oat	Avena fatua
Salt Marsh Baccharis	Baccharis douglasii
Coyote Brush	Baccharis pilularis
Common Field Mustard	Brassica campestris
Soft Chess	Bromus mollis
Ripgut Grass	Bromus rigidús
Sea Rocket	Cakile maritima
Coast Goosefoot	Chenopodium macrospermum
Red Goosefoot	Chenopodium rubrum
Cobweb Thistle	Cirsium occidentale
Bull Thistle	Cirsium vulgare
Poison Hemlock	Conium maculatum
Brass Buttons	Cotula coronopifolia
Salt Marsh Dodder	Cuscuta salina
Salt Grass	Distichlis spicata
Wild Rye Grass	Elymus glaucus
Alkali Rye Grass	Elymus triticoides
White-stemmed Filaree	Erodium moschatum
Alkali Heath	Frankenia grandifolia
Beach-bur	Franseria chamissonis
Cut-leaved Geranium	Geranium dissectum
Gum Plant	Grindelia latifolia
Telegraph Weed	Heterotheca grandiflora
Farmer's Foxtail	Hordeum leporinum
Fleshy Jaumea	Jaumea carnosa
Tree Mallow	Lavatera cretica
Perennial Ryegrass	Lolium perenne
Coast Trefoil	Lotus formosissimus
Bur Clover	Medicago hispida
Pennyroyal	Mentha pulegium
Sea Fig	Mesembryanthemum chilense
Hottentot Fig	Mesembryanthemum edule
Bermuda Buttercup	Oxalis pes-caprae

VASCULAR PLANTS (continued)

Common Names	Scientific Names
Cut-leaved Plantain	Plantago coronopus
Rabbit's Foot Grass	Polypogon monspeliensis
Pacific Silverweed	Potentilla egedii grandis
Wild Radish	Raphanus sativus
Curley Dock	Rumex crispus
Ditch Grass	Ruppia maritima
Pickleweed	Salicornia virginica
Common Groundsel	Senecio vulgaris
Milk Thistle	Silybum marianum
Salt-marsh Sand Spurry	Spergularia marina

INSECTS

Common Names	Scientific Names
Fly	Ceatopogonidae
Beetle	Coccinella california
Fly	Copromyza sp.
Fly	Drapotis sp.
Beetle	Enochris sp.
Shore Fly	Ephydra riparia
Beetle	Hydrophilidae
Fly	Neoscatella setosa
Aphid	Psyllidae
Fly	Pelomyiella melanderi
Water Boatman	Tricorxixa riticulata
Beetle	Tropisternus salsaureutus

REPTILES

Common Names	Scientific Names
California Alligator Lizard	Gerhonotus multicarinatus multicarinatus
Northwestern Fence Lizard	Sceloporus occidentalis occidentalis

BIRDS

Common Names	Common Names
Great Blue Heron	Caspian Tern
Great Egret	Belted Kingfishers
Snowy Egret	Black Phoebe
Mallard	Barn Swallow
Gadwall	American Robin
Cinnamon Teal	Loggerhead Shrike
Turkey Vulture	European Starling
Red-tailed Hawk	House Sparrow
American Kestrel	Red-winged Blackbird
American Coot	Brewer's Blackbird
Black-necked Stilt	Lesser Goldfinch
American Avocet	Savannah Sparrow
Semipalmated Plover	
Killdeer	
Black-bellied Plover	
Willit	
Northern Phalarope	
Red Phalarope	
Long-billed Dowitcher	
Least Sandpiper	
Western Gull	
Ring-billed Gull	
Bonaparte's Gull	
Forster' Tern	
Elegant Tern	

MAMMALS

Common Names	Scientific Names
Opposum	Didelphis virginianus
California Mole	Scapanus latimanus
Ornate Shrew	Sorex ornatus
Vagrant Shrew	Sorex vagrans
Coyote	Canis latrans
Striped Skunk	Mephitis mephitis
Longtail Weasel	Mustela frenata
Raccoon	Procyon lotor
Gray Fox	Urocyon cinereoargenteus
Red Fox	Vulpes Fulva
California Vole	Microtus claifornicus
House Mouse	Mus musculus
Muskrat	Ondatra zibethica
Deer Mouse	Peromyscus maniculata

MAMMALS (continued)

Common Names	Scientific Names
Norway Rat	Rattus norvegicus
California Ground Squirrel	Spermophilus beecheyi
Valley Pocket Gopher	Thomomys bottae
Blacktail Jackrabbit	Lepus californicus
Audubon Cottontail	Sylvilagus audubonii

TABLE 3

Threatened, Endangered and Candidate species that could potentially occur within 1/2 mile of the PG&E Moss Landing Fee Property Line

COMMON NAME	SPECIES	STATE STATUS	FEDERAL STATUS
California brackishwater snail	*Tryonia imitator*		Candidate
California tiger salamander	*Ambystoma californiense*		Candidate
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*	Endangered	Endangered
California brown pelican	*Pelecanus occidentalis californicus*	Endangered	Endangered
Bald eagle	*Haliaeetus leucocephalus*	Endangered	Endangered
Swainson's hawk	*Buteo swainsoni*	Threatened	
Peregrine falcon	*Falco peregrinus anatum*	Endangered	Endangered
Western snowy plover	*Charadrius alexandrinus nivosus*		Threatened
California clapper rail	*Rallus longirostris obsoletus*	Endangered	Endangered
California least tern	*Sterna antillarum*	Endangered	Endangered
Bank swallow	*Riparia riparia*	Threatened	
Monterey spineflower	*Chorizanthe pungens var pungens*		Proposed Endangered
Menzies' wallflower	*Erysimum menziesii*	Endangered	Candidate
Sand gilia	*Gilia tenuiflora arenarila*	Threatened	Candidate
Seaside bird's-beak	*Cordylanthus rigidus littoralis*	Endangered	Candidate
Santa Cruz tarplant	*Holocarpha macradenia*	Endangered	Candidate
Eastwood's goldenbush	*Ericameria fasciculata*		Candidate

Source: California Department of Fish and Game, Natural Diversity Data Base Report 12/23/93
California Department of Fish and Game, State and Federal Endangered and Threatened Animals of California. Revised January 1993.

SOURCES

ABA Consultants. 1988. Biological Assessment of Wetland Environments Impacted by Culvert Repairs at the Mouth of Moro Cojo Slough. Monterey County Flood Control and Water Conservation District.

ABA Consultants. 1989. Elkhorn Slough Wetland Management Plan. California State Coastal Conservancy and Monterey County Planning Department.

Browning, Bruce M., 1972. The Natural Resources of Elkhorn Slough. California Department of Fish and Game, Sacramento, California.

The California Natural Diversity Data Base. 1989. California Department of Fish and Game, Sacramento, California.

Hood, Leslie, 1982. Inventory of California Natural Areas - Volume VII. California Natural Areas Coordinating Council, Sonoma, California.

List of State and Federal Endangered and Threatened Animals of California. January, 1990. California Department of Fish and Game, Sacramento, California.

Trail Map. 1988. Elkhorn Slough National Estuarine Research Reserve, Watsonville, California.

APPENDIX B

MOSS LANDING POWER PLANT MASTER SITE PLAN

GEOLOGY AND SOIL ELEMENTS

Prepared by:
Pacific Gas and Electric Company
Technical and Ecological Services
San Ramon, California
May 1990

APPENDIX B
MOSS LANDING POWER PLANT MASTER SITE PLAN
GEOLOGY AND SOIL ELEMENTS

INTRODUCTION AND REGIONAL GEOLOGY

The Moss Landing Master Plan Study Area lies along the central California coast within the Coast Ranges Geomorphic province. This province is characterized by northwest trending mountain ranges and intervening valleys which reflect the structural grain imparted by regional plate tectonics. This grain is dominated by the San Andreas fault zone, which separates the Pacific and North American plates by strike slip faulting. The fault zone separates contemporaneous though differing basement complexes. East of the fault zone, well east of the project site area, the basement rocks are comprised of Mesozoic Franciscan Formation units and associated serpentinite and coeval Mesozoic sedimentary rock units and surficial deposits of marine and continental origin except where uplifted to form ranges such as the Gabilan Range and the Sierra de Salinas. Earth materials exposed in the project areas are comprised of the young, surficial units which overlie crystalline rocks at great depth.

SITE GEOLOGY

The topography of the site area has been formed by two processes acting together. Fluctuations of sea level throughout the Pleistocene in response to the Ice Ages has resulted in the formation of wide, wave-cut benches. These benches are characteristic of a narrow band of terrain along the central coast of California. Subsequent to bench formation and the deposition of littoral sediments, subaerial erosion has altered these surfaces in most areas. Such is the case in the study area where erosion and stream flows have produced a gentle relief from the wave-cut bench. Three geologic units are exposed in the project study area (Jennings, C.W. and R.G. Strand, 1958) and are shown on Figure B-1, Site Geologic Map. These units range in age from Pleistocene (about 2 million years before present) to Recent (within the last 10,000 years). The oldest units lie at the eastern, landward portion of the site area in hilly terrain. These units are briefly described below:

Recent Dune Sands (Qs) - This unit includes Recent sand dune deposits found along the edge of Monterey Bay and is comprised of light-colored, loose, fine to coarse-grained quartz and feldspar sand derived from the weathering of granitic highlands. The dunes are partially arrested from movement by vegetation, especially on their leeward side. Isolated exposures of Recent dune sands are found landward of the shoreline.

Recent Alluvium (Qal) — Recent alluvial deposits, comprised of water-lain materials ranging in gradation from clay to gravel, predominately medium to fine-grained, make up this unit. The unit also includes horizons of organic-rich, fine-grained sediments containing decaying vegetation. These alluvial deposits are found in the lower-lying portions of the site area.

Quaternary Nonmarine Terrace Deposits (Qt) — Quaternary terrace and alluvial fan deposits, comprised of sandy to clayey gravels and finer sediments, belong to this unit. The unit's surface horizons generally have sparse gravel content. These materials form terraces and low hills in the eastern portion of the study area with elevations generally above 10 feet. These terrace deposits overlie older alluvial materials containing shell fragments of probable marine origin at depth based upon borings made the power plant site (Dames & Moore, 1948, 1962).

A number of borings have been made at the site area for the Moss Landing Power Plant and ancillary facilities (Dames & Moore, 1948, 1962; Mittlehauser Corporation, 1987; PG&E, TES, 1989). Information from a sampling of the boring logs from an extensive number of borings indicates that the site area has a varied subsurface comprised of marine and nonmarine sediments. In general, the soil profile at the power plant site can be described as sands and silty sands to depths up to 20 feet, grading to clays, silty clays, and organic clays at depths of about 30 feet, and grading to clean, dense sands at depths of about 40 feet. These deeper sands overlie a thick sequence of stiff clays containing oyster shells which grade to dense sands at depths of over 70 feet. Bedrock at the site is at depths of several hundred feet. The ground water table is slightly above mean sea level and reflects the surface topography.

SEISMICITY AND GEOLOGIC HAZARDS

The site area is in a seismically active region dominated by the San Andreas fault. Strong ground shaking and damage occurred at the site during the magnitude 7.1 Loma Prieta earthquake on October 17, 1989. Additional strong events can be expected to occur in the site area. Table 1 lists those mapped faults in the site region (Jennings, 1975) which may be the source of future earthquakes.

TABLE 1
Significant Faults in Site Region

Fault	Distance and Direction from Site, Miles
Calaveras	20, East
Cypress Point	22, Southwest
King City	7, Southwest
Monterey Bay Zone	5, West
Palo Colorado-San Gregorio	19, West
San Andreas	11, Northeast
Sargent	14, Northeast
Zayante	12, North

Table 2 lists potential geologic hazards and evaluates their likelihood of affecting the site area. This assessment is based upon a review of site operational history, geologic literature, and field observations. The effects of major earthquake events will impact the site area more significantly than other listed potential geologoic hazards.

TABLE 2
Potential Geologic Hazards

Potential Hazard	Likelihood of Occurrence During Life of Facility
Surface fault rupture	None
Strong ground shaking	High[1]
Liquefaction	Moderate[2]
Lurching and lateral spreading	Moderate[3]
Differential settlement	Moderate[4]
Landslides	Low[5]
Expansive soils	Low[6]
Soil Erosion	Moderate
Volcanism	None
Tsunami	Low[7]
Seiches	Low[8]
Loss of mineral resources	None
Unique geologic features	None

[1]Strong ground shaking would be caused by strong earthquakes occurring on the faults identified on Table 1.

[2]Limited liquefaction probably occurred during Loma Prieta earthquake. More pronounced effects may accompany a larger event.

[3]Lurching effects may occur during major earthquake. Some power plant areas experienced lateral spreading during the Loma Prieta earthquake.

[4]Localized differential settlement of fill occurred during Loma Prieta event.

[5]Some slope instability has occurred along Dolan Road. Most of the site areas have good slope stability.

[6]Near-surface soils are generally non-expansive in developed areas. Areas of Quaternary alluvium may have expansive soils.

[7]Low-lying seaward portions of the site area are protected from tsunami hazard by sand dune deposits.

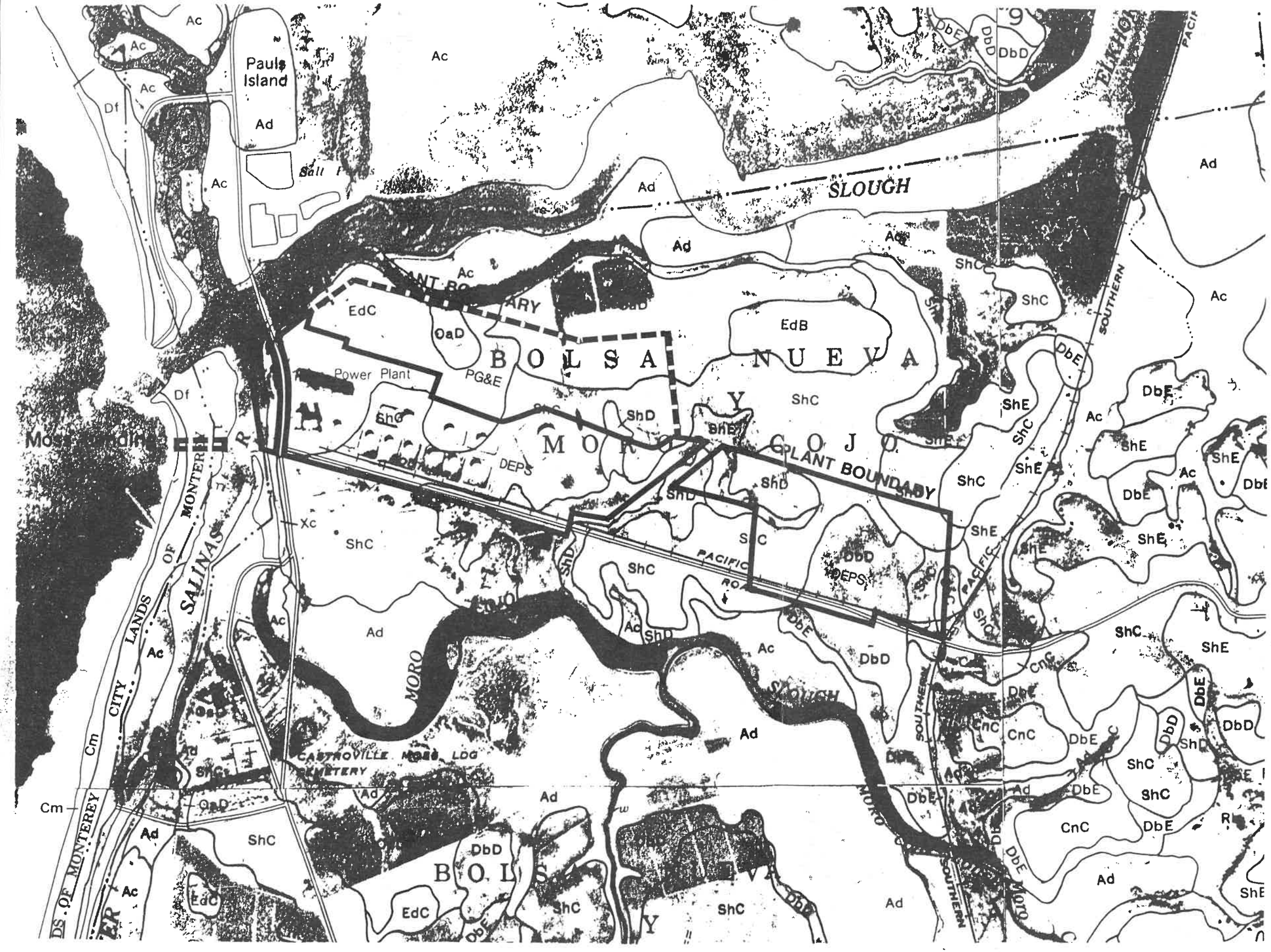
[8]Slight potential for seiches in Elkhorn Slough.

SOIL RESOURCES

Figure B-2 shows the distribution of soil series mapped in the site area by the Soil Conservation Service (USDA, 1978). Seventeen mapping units representing eight soil series area shown. Table 3 gives a description of the mapping units and Table 4 provides information about their soil characteristics.

Soil belonging to the Cropley, Diablo, Elkhorn, Oceano, and Santa Ynez series and the xerothents class are found on the elevated portions of the site areas. These soils are generally sandy loams except for the Cropley and Diablo series soils, which are clayey. These upland soils developed in the soft sedimentary deposits (Qt). Clayey soils predominate in the lower lying portions of the site over Quaternary alluvium (Qal). These low lying soils include clays and clay loams of the Alviso and Rindge soil series. Although the dune lands (Qs) have some vegetation, they do not have a well-developed soil horizon.

Soils on the terrace deposits support agricultural and dairy activities. Dune soils and those in the low-lying areas support watershed and estuarine habitat.



LEGEND

- DEPS Boundary
- Project Boundary
- Ac - Alviso silty clay loam
- Ad - Alviso silty clay loam, drained
- CnC - Cropley silty clay, 2-9% slopes
- DbD - Diablo clay, 9-15% slopes
- DbE - Diablo clay, 15-30% slopes
- Df - Dune land
- EdB - Elkhorn fine sandy loam, 2-5% slopes
- EdC - Elkhorn fine sandy loam, 5-9% slopes
- EdD - Elkhorn fine sandy loam, 9-15% slopes
- EbD - Elkhorn fine sandy loam, thin surface varient , 5-15% slopes
- EeE - Elkhorn fine sandy loam, thin surface varient, 15-30% slopes
- Oad - Ocean loamy land,2-15% slopes
- Rb - Rindge muck
- ShC - Santa Ynez fine sandy loam, 2-9% slopes
- ShD - Santa Ynes sandy loam, 9-15% slopes
- ShE - Santa Ynez fine sandy loam, 15-30% slopes
- Xc - Xerorthents, loamy

N

1" = 1500'

SITE SOIL MAP

MOSS LANDING POWER PLANT
MASTER PLAN

FIGURE B-2

TABLE 3
Soil Map Unit Description

Series Name	Map Unit	Map Unit Name	Description
Alviso	Ac	Alviso silty clay loam	Gray silty clay loam in nearly level basins and tidal flats.
Alviso	Ad	Alviso silty clay loam, drained	Gray, silty clay loam in level basins and tidal flats.
Cropley	CnC	Cropley silty clay, 2-9% slopes	Dark gray silty clay on sloping fans, terraces, and terrace breaks.
Diablo	DbD	Diablo clay, 9-15% slopes	Dark gray clay on strongly sloping uplands.
Diablo	DbE	Diablo clay, 15-30% slopes	Dark clay on moderately steep uplands
Dune Land	Df	Dune land	Tan, wind-deposited sand on sloping and steep hills and mounds.
Elkhorn	EdB	Elkhorn fine sandy loam, 2-5% slopes	Brown, fine sandy loam on gently sloping marine terraces.
Elkhorn	EdC	Elkhorn fine sandy loam, 5-9% slopes	Brown, fine sandy loam on moderately sloping marine terraces.
Elkhorn	EdD	Elkhorn fine sandy loam, 9-15% slopes	Brown, fine sandy loam on strongly sloping marine terraces.
Elkhorn	EeD	Elkhorn fine sandy loam, thin surface variant, 5-15% slopes	Brown, fine sandy loam on moderately sloping marine terraces.
Elkhorn	EeE	Elkhorn fine sandy loam, thin surface variant, 15-30% slopes	Brown, fine sandy loam on fairly steep hills and marine terraces.
Oceano	OaD	Oceano loamy land, 2-15% slopes	Grayish-brown, loamy sand on rolling dunelike hills.
Rindge	Rb	Rindge muck	Black, organic, nearly level soil in old slough, tidal and lake basins.
Santa Ynez	ShC	Santa Ynez fine sandy loam, 2-9% slopes	Grayish-brown, fine sandy loam on gently to fairly sloping terraces.
Santa Ynez	ShD	Santa Ynez fine sandy loam, 9-15% slopes	Grayish-brown, fine sandy loam on strongly sloping terraces.
Santa Ynez	ShE	Santa Ynez fine sandy loam, 15-30% slopes	Grayish-brown, fine sandy loam on dissected, hilly terraces.
Xerorthents	Xc	Xerorthents, loamy	Variable colored and sloped loamy soils on steep bluffs and banks.

Source: Soil Survey of Monterey County, California. USDA, Soil Conservation Service 1978.

TABLE 4
General Soil Characteristics

Series Name	Map Unit	Land Position	Surface Horizon Depth, in.	Unified Soil Classification	Shrink-Swell Potentia l	Erosion Factor K	Erosion Factor T	Erosion Hazard	Capability Class
Alviso	Ac	Basins, tidal flats	0-14"	CL,CH	M	ND	ND	L	VIII
Alviso	Ad	Basins, tidal flats	0-14"	CL,CH	M	ND	ND	L	VIII
Cropley	CnC	Fans, terraces	0-69"	CL,CH	H	0.24	5	L-M	II
Diablo	DbD	Uplands	0-53"	CL,CH	H	0.24	5	L	III
Diablo	DbE	Uplands	0-53"	CL,CH	H	0.24	5	M	IV
Dune Land	Df	Sand Dunes	ND	ND	ND	ND	ND	ND	ND
Elkhorn	EdB	Marine terraces	0-26"	SM	L	0.32	5	L	II
Elkhorn	EdC	Marine terraces	0-26"	SM	L	0.32	5	L-M	II
Elkhorn	EdD	Marine terraces	0-26"	SM	L	0.32	5	M	III
Elkhorn	EeD	Marine terraces	0-17"	SM	L	0.32	5	M	III
Elkhorn	EeE	Marine terraces	0-17"	SM	L	0.32	5	H	IV
Oceano	OaD	Dune-like hills	0-80"	SP-SM,SM	L	0.1	5	L-M	IV
Rindge	Rb	Sloughs, basins	0-60"	Pt	L	ND	ND	N	VI
Santa Ynez	ShC	Terraces	0-18"	SM	L	0.43	1	L-M	IV
Santa Ynez	ShD	Terraces, hills	0-18"	SM	L	0.43	1	M	IV
Santa Ynez	ShE	Dissected terraces	0-18"	SM	L	0.43	1	H	VI
Xerothents	Xc	Bluffs, banks, fans	0-60"	CL	L	ND	ND	L-H	VI

General Notes:

1. Reference for table is Soil Survey of Monterey County, USDA, 1978.
2. See Figure B-2 for location of soil map units.
3. See Table 3 for descriptions of map units.
4. H equals High; M equals Medium; L equals Low; ND equals No Data in soils report.

REFERENCES:

1. Cook, T.D., 1978, Soil Survey of Monterey County, California. United States Department of Agriculture (USDA, Soil Conservation Service in cooperation with the Forest Service, USDA and the University of California Agricultural Experiment Station.

2. Jennings, C. W. and R. G. Strand, 1958, Santa Cruz Sheet, Geologic Map of California. California Division of Mines and Geology.

3. Jennings, C. W., 1975, Fault Map of California with locations of volcanoes, thermal springs, and thermal wells. California Geologic Data Map Series Map No. 1. California Division of Mines and Geology.

4. PG&E files including boring logs from 1948 and 1962 drilling by Dames & Moore; logs of borings by Mittelhauser Corporation, 1987; and, logs of cone penetrometer soundings by PG&E, TES Civil Unit, 1989.

5. PG&E Report: Moss Landing Power Plant Post Earthquake (October 17, 1989) Subsurface Investigation, Moss Landing, California Technical and Ecological Services Civil Unit Nov. 30, 1989 Report No. 420-89.131

APPENDIX C

MOSS LANDING
POWER PLANT MASTER SITE PLAN

HYDROLOGIC DESCRIPTION

Prepared by:
Pacific Gas and Electric Company
Hydro Engineering and Construction
April 1990

APPENDIX C
MOSS LANDING POWER PLANT MASTER SITE PLAN
HYDROLOGIC DESCRIPTION

1.0 PURPOSE AND SCOPE

This study addresses the existing climactic and hydrologic conditions at Moss Landing Power Plant and its surrounding areas within a half-mile radius of the plant's property.

2.0 DESCRIPTION OF PROJECT

Moss Landing Power Plant was built in 1950 and is located in Monterey County on approximately 370 acres. The major surface water bodies within a half-mile radius of the project site are: 1) Elkhorn Slough on the north; 2) Bennett Slough on the northeast; 3) Moss Landing Harbor on the west; 4) Old Salinas River on the southwest; and 5) Moro Cojo slough on the south. Moss Landing Harbor is a man-made harbor which receives its water mainly from the sloughs and Monterey Bay through tidal exchanges.

3.0 DESCRIPTION OF CLIMATOLOGY

3.1 Precipitation: The mean annual precipitation (MAP) isoheytal map compiled by S.E. Rantz [1] of the U.S. Geological Survey shows that the MAP depth for Moss Landing Power Plant is about 18 inches. This map also shows that the variation of the annual rainfall depth over the project vicinity is small, varying from 16 to 20 inches within the 15-mile radius of the plant.

There is no weather station at Moss Landing. However, there is a weather station (NWS No. 5795) at Monterey, located about 16 air miles south of Moss Landing. This station has 40 years of published records, starting from 1949 to 1988. Because of the closeness of Moss Landing and Monterey in distance and their proximity to Monterey Bay, the climactic conditions of Monterey and Moss Landing can be considered similar. Thus, the records for Monterey can be used for the plant. Table 1 summarizes the 40 years of records at Monterey.

TABLE 1

PRECIPITATION AT MONTEREY

Precipitation	Depth (in)	Time Occurring
Mean annual	18.67	1949 to 1988
Maximum annual	37.70	1983
Minimum annual	8.95	1953
Maximum monthly	9.79	December 1955
Maximum 24-hour	3.85	December 23, 1955

Rainfall distribution over the project area is highly seasonal with about 90 percent of the annual precipitation occurring from November to April. Table 2 shows the average monthly rainfall depths recorded at Monterey.

TABLE 2

AVERAGE MONTHLY RAINFALL SEASONAL VARIATION

Month	Rainfall Depth (in)
January	3.88
February	2.78
March	3.18
April	1.61
May	0.39
June	0.19
July	0.08
August	0.11
September	0.30
October	0.82
November	2.52
December	3.01

The 24-hour, 100-year rainfall depth derived statistically by the Department of Water Resources [2] over the Monterey area is 3.9 inches.

3.2 Temperature: The weather at Moss Landing is mild with the year-round average daily temperatures between 40 to 70°F. Based on 40 years of record at Monterey, the recorded extreme and computed average temperatures are summarized in Table 3.

TABLE 3

MONTHLY TEMPERATURE (°F) SEASONAL VARIATION

Month	Average High	Average Low	Recorded Maximum	Recorded Minimum
January	60	43	84	22
February	62	44	85	26
March	61	45	85	32
April	64	45	93	35
May	65	48	95	38
June	67	50	101	42
July	68	52	98	43
August	69	53	95	45
September	73	53	101	43
October	70	51	104	35
November	66	47	95	35
December	61	44	89	23

3.3 Wind: Based on about 155,000 hourly observations taken from 1948 to 1969 at Monterey, the annual average wind speed is 5.7 mph with the modal wind from the northwest at about 8.0 mph.

4.0 DESCRIPTION OF HYDROLOGY

4.1 Hydrologic Setting: The project area is bounded by Elkhorn Slough on the north and Moro Cojo Slough on the south. On the west is Moss Landing Harbor, which is also the confluence of these two sloughs. There are no available flow data for any of the waterways running into Moss Landing Harbor.

Both the Old Salinas River and Moro Cojo Slough are regulated by tide gates at their mouths. Old Salinas River is regulated by ten 48-inch gates and three 48-inch concrete ground culverts and Moro Cojo Slough by four 48-inch gates. The tide gates on the Old Salinas River are opened during ebb tides to drain and closed during high tides to keep the harbor water out. The gates on Moro Cojo are operated in such way to keep the water in the slough below mean sea level.

Elkhorn Slough is the largest waterway in the project area and it drains about 50 square miles at the Highway 1 crossing. Except for the reach behind Elkhorn Road crossing located about 5 miles upstream of Moss Landing, Elkhorn Slough is greatly affected by the tides and near-shore currents in Monterey Bay. There are also 7 gates at the Elkhorn Road crossing.

Bennett Slough is drained by a pipe and gate system at the Jetty Road crossing.

4.2 Surface Hydrology: The major surface water features near Moss Landing Power Plant are Moss Landing Harbor and Elkhorn Slough. These two surface water bodies also provide the source water for the power plant. The water surface level of Moss Landing and Elkhorn Slough is dictated by the currents in Monterey Bay and the tidal exchange between the bay and harbor. The major currents offshore are associated with the California Current, which flows southward and parallel to the coastline. The nearshore currents are controlled primarily by wind, wave, and tidal currents.

There are only limited tidal data available for Moss Landing Harbor. Table 4 summarizes the tidal information record during the summers of 1986 and 1987 by a NOAA gage (No. 9413623, Elkhorn Slough at Highway 1 Bridge, Moss Landing.)

TABLE 4

TIDAL INFORMATION

Tide	Elevation
Mean lower low	0.00
Mean low	1.08
Mean	2.86
Mean high	4.64
Mean higher high	5.33

4.3 Surface Drainage: The drainage area above Moss Landing is small. It is estimated from the 7.5 minute USGS quadrangle map (Moss Landing, Calif.) that the total drainage area including the power plant is less than one square mile. Much of the plant site is drained by two separate storm sewer systems consisting of a network of catch basins and drainage pipes. The storm runoff collected by the storm sewer systems is discharged either to Elkhorn Slough or directly to Monterey Bay through the outfalls. The rainfall excess not collected by the systems would follow the ground contours and flow southward to Moro Cojo Slough.

Because of its small size in drainage area, the presence of the power plant has very little effect on the regional drainage pattern.

4.4 Flooding Potential: A 100-year flood study was conducted by the Federal Emergency Management Agency (FEMA) in 1986. This map shows that the entire project site is located outside the inundation limits that has one percent chance of occurring on the average in every given year. The 100-year inundation limits are shown in Figure C-1.

Because of the low 24-hour , 100-year storm depth and small drainage area, local runoff at Moss Landing Power Plant would be small. Therefore, except for minor local ponding, flooding at the power plant is not expected.

REFERENCES:

1. Rantz, S.E., "Mean Annual Precipitation in the California Region," U.S. Geological Survey, Menlo Park, California, 1969.

2. Department of Water Resources, "Rainfall Analysis for Drainage Design, Volume II, Long-Duration Precipitation Frequency Data," Bulletin No. 195, October.

3. Federal Emergency Management Agency, Flood Insurance Rate Map, Community Panel Number 060195 0055F, August 5, 1986.

APPENDIX D

MOSS LANDING POWER PLANT SITE MASTER PLAN

CULTURAL RESOURCES GUIDELINES

Prepared by:
Pacific Gas and Electric Company
Building and Land Services Department
March 1994

INTRODUCTION

The following is information regarding cultural resource sensitivity at Moss Landing Power Plant. Guidelines for operations, maintenance and future development are provided.

The numerous cultural resource investigations which have been undertaken at Moss Landing Power Plant were examined in preparation of these guidelines. The references for these investigations are provided at the end of this document. Additionally, the extensive collection of photographs that document construction of the plant beginning from 1940s was reviewed to obtain information on previous earth-moving activities. Several employees who have worked at the plant since the 1950s were also interviewed about their knowledge of plant construction throughout the years.

Construction photographs and interviews have revealed that earth-moving activities in Areas II and III (see Figure D1) of the Plant have been extensive. Construction of Units 1 through 7 involved excavation to depths exceeding 20 feet. All fuel oil tank farms were excavated 10 to 15 feet below surface. The 115, 230, and 500 kV switchyards have all been graded and contain underground conduits. The open area between the switchyards, power units, and fuel oil tanks contains underground storm drain lines, circulating water lines and the discharge conduit for Units 1, 2, and 3.

In June 1986, subsurface auger testing was performed at the sites of the then proposed sandblasting and switchyard control buildings to check for the presence of cultural resources. This area is located north of fuel tank No. 10 and south of the 230 kV switchyard. Soil stratigraphy in the auger hole sidewalls revealed extensive mixing of fill with original soil to at least three feet below ground surface. Back dirt from the auger hole contained a high amount (20%) of non-indigenous gravel, further confirming that fill has been mixed with original soil.

Based on the above information, archaeological sensitivity was assessed for the Plant. Removal and disturbance of original ground surface in Area II of the Plant has been so extensive that this area has been determined to have extremely low potential for undisturbed cultural resources.

Portions of Area III have not experienced ground surface disturbance from construction activities. All of area III was surveyed in 1973 by Greenwood. No archaeological sites were found on the survey. As such, additional archaeological clearance for proposed construction in Area III is not required.

Costonoan Indians occupied the Moss Landing area and evidence of their past habitation is plentiful. Fishing and farming dominated the area in the recent past. Two documented archaeological sites are present on the plant property: CA-MNT-229 and CA-MNT-277. CA-MNT-229 is adjacent to the existing leach line system in the northwest corner of the Plant. CA-MNT-277 is in Area I.

MANAGEMENT GUIDELINES

Area I: It is recommended that archaeological clearance be performed in Area I prior to any ground disturbing activities. This area, traversed by transmission lines on the north one-third of the Plant property, has received minimal surface disturbance from Plant activities.

Areas II and III: These areas include the operating portions of the Plant: Units 1 through 7, all fuel tank farms, three switchyards, intake units, shops, warehouses, and offices. Earth-moving associated with plant construction began in the 1940s and has been so extensive that the possibility of the presence of cultural resources in these areas is extremely remote. It is not necessary to perform cultural resources clearances in Areas II and III. However, should cultural remains (e.g. human bones or artifacts) be discovered during the course of any construction activities in these areas, work at the location of the find should halt and the Plant Manager should be notified. The Manager should at that time contact the PG&E archaeologists. Work should not commence until archaeological clearance has been obtained.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS AT MOSS LANDING AT POWER PLANT

1986 Breschini, G.S. and T. Haversat
Preliminary Cultural Resources Reconnaissance of a Proposed Switchyard Control Building, Moss Landing Power Plant, Northern Monterey County, California.

Preliminary Cultural Resources Reconnaissance of a Proposed Sandblasting Building, Moss Landing Power Plant, Northern Monterey, California.

1985 Caruso, A.G.
Archaeological Reconnaissance for the Proposed Main Entrance Relocation, Moss Landing Power Plant, Monterey County, California.

1984 Haversat, T.
Moss Landing Power Plant Shoreline Protection Project.

1982 Hampson, P. and G.S. Breschini
Preliminary Archaeological Reconnaissance for Three Proposed Tank Installations at the PG&E Power Plant, Moss Landing, California.

1980 Breschini, G.S. and T. Haversat
Archaeological Mitigation Plan for PG&E's Moss Landing Marine Terminal Expansion, Moss Landing, Monterey County, California.

1979 Peak, A.S.
Archaeological Test Excavation of CA-MNT-228 and CA-MNT-229, Moss Landing, Monterey County, California.

1976 Peak, A.S.
Cultural Resource Assessment of the Proposed Moss Landing Wastewater Treatment System, Monterey County, California.

1974 Greenwood, R.S.
Archaeological Survey at Moss Landing.
Marine Terminal Phase II EIR.

1973 Greenwood, R.S.
Archaeological Survey at Moss Landing.

1972 Riddell, F.A.
Survey of CA-MNT-277.