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STAFF REPORT: REGULAR CALENDAR

Application No.:	**9-16-0560**
Applicant:	**Cabrillo Power I LLC**
Location:	Onshore and offshore locations on and adjacent to the Encina Power Station and Carlsbad State Beach, Carlsbad, San Diego County
Project Description:	Decommissioning of the Encina Marine Oil Terminal, including removal of a seafloor fuel oil pipeline and remaining mooring systems, partial removal and abandonment in place of onshore ancillary structures, and dismantlement and reconstruction of a riprap groin on the beach
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Cabrillo Power I LLC (Cabrillo) proposes to decommission the Encina Marine Oil Terminal (MOT) formerly serving the Encina Power Station (EPS), in Carlsbad, San Diego County (**Exhibit 1**). Since the EPS now uses natural gas only, the MOT is no longer needed. The primary elements of the decommissioning project would include: (1) removal of a 20-inch, 3,855-feet long idle submarine fuel oil pipeline; (2) removal all remaining components (e.g., anchors, chains) of the former offshore mooring systems; (3) temporary removal of a riprap

groin to allow the removal of the pipeline where it crosses the beach and surf zone, followed by the reconstruction of the groin in its original location; and (4) partial removal and/or abandonment-in-place of several onshore structures ancillary to the pipeline (e.g., valve pits, road underpass structures, electrical and piping components).

The key Coastal Act issues raised by this project are the potential for adverse impacts to marine resources, commercial fishing, public access and recreation, and visual resources, and the permissibility, under Section 30235, of reconstructing the riprap groin on Carlsbad State Beach following the removal of the oil pipeline that it currently protects. The proposed project has the potential to harm beach and intertidal habitat and both soft- and hard-bottom subtidal habitats, as well as marine mammals, fish and marine water quality. To avoid and minimize impacts, Commission staff recommends several conditions designed to protect marine habitats and sensitive species. These include **Special Condition 2**, which incorporates measures to protect hard bottom areas and kelp beds during project vessel anchoring and to minimize the risk of harm to marine wildlife from underwater noise during pipeline removal; **Special Condition 4** requiring the avoidance and monitoring of grunion spawning on the beach; and **Special Condition 5** requiring Cabrillo to submit a Marine Wildlife Monitoring and Contingency Plan for the protection of marine mammals and sea turtles during offshore work. **Special Conditions 8, 9, 10** and **11** require Cabrillo to submit plans and enact measures to protect against the discharge of hazardous and non-hazardous substances into the marine environment.

Project activities also have the potential to interfere with commercial fishing and recreational fishing and boating in offshore areas, and with public access, recreation and scenic resources along the shoreline and on Carlsbad State Beach. To minimize this potential, **Special Condition 7** requires that Cabrillo avoid or project activities during the summer and on weekends, when recreational use of the ocean and shore is heaviest, and to minimize closures of open water areas. Finally, **Special Condition 12** requires Cabrillo to prepare a Shoreline Access Plan providing alternative lateral access routes and minimizing beach closure areas during onshore project activities.

Cabrillo proposes to reconstruct the riprap groin on the beach following the removal of the fuel oil pipeline as a means of protecting and maintaining this segment of Carlsbad State Beach. However, there is no substantial evidence that this public beach is currently in danger of erosion, and Cabrillo has not provided evidence that the placement of a groin in this location is necessary to protect the beach, or environmentally superior to other feasible alternatives for beach protection. The staff therefore recommends the Commission find that the proposed groin reconstruction on the beach is not required to protect the existing beach, and thus that it is not consistent with Coastal Act 30235. Reconstruction of the groin would result in the unallowable placement of fill in coastal waters, and adverse impacts to marine resources, visual and scenic resources, and public access and recreation. In order to avoid these impacts, **Special Condition 3** requires Cabrillo to remove the existing groin in its entirety and properly dispose of the riprap at a location off of the beach and outside coastal waters.

As conditioned, staff recommends the Commission find the project consistent with Coastal Act Sections 30210, 30220, 30221, 30230, 30231, 30232, 30233, 30234.5, and 30251.

Commission staff recommends **approval** of coastal development permit application 9-16-0560, as conditioned.

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APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit 9-16-0560 subject to conditions set forth in the staff recommendation.*

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

Resolution:

The Commission hereby approves the Coastal Development Permit 9-16-0560 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**. The permit is not valid and development shall not commence until a copy of the permit, signed by Cabrillo Power or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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

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

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

5. **Terms and Conditions Run with the Land**. These terms and conditions shall be perpetual, and it is the intention of the Commission and Cabrillo Power to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Other Permits and Approvals.** PRIOR TO THE START OF CONSTRUCTION, the Permittee shall provide to the Executive Director copies of all other local, state, and federal permits required to perform project-related work. These permits and approvals include:

   a. Regional Water Quality Control Board – Los Angeles Region: Final approved 401 Water Quality Certification.
   b. U.S. Army Corps of Engineers: Authorization under Nationwide Permit #3 and #27, pursuant to Rivers and Harbors Act Section 10 and Clean Water Act Section 404.
   c. California Department of Parks and Recreation: Right of Entry (ROE) Permit.

   Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally necessary.

2. **Mitigated Negative Declaration (MND) Mitigation Measures**. This permit incorporates those mitigation measures identified in the December 2015 *Mitigated Negative Declaration for the Cabrillo Power I LLC Encina Marine Oil Terminal Decommissioning Project* (State Clearinghouse No. 2015101064) concerning marine habitats, biological resources, water quality, and fishing, that are attached to this report as **Appendix B**.

   PRIOR TO THE COMMENCEMENT OF DECOMMISSIONING ACTIVITIES, copies of all plans, reports and other materials required under the listed MND mitigation measures shall be provided to the Executive Director for review and approval. No project activities may begin until the Executive Director has provided written approval of these submissions.

3. **Removal of Riprap Groin**. The Permittee shall remove the existing riprap groin in its entirety and shall submit for Executive Director review and written approval a plan to properly dispose of the rock comprising the groin at a location off of the beach and outside coastal waters.

4. **Grunion Run Protection & Monitoring**. To the maximum extent feasible, project activities occurring in the intertidal zone and on the beach shall be scheduled outside of the grunion spawning season defined for this permit as the seasonally-predicted grunion run and egg incubation period as identified at the beginning of each year by the California Department of Fish and Wildlife (generally April through August). If scheduling is not possible outside of the grunion spawning season, prior to project activities in the intertidal zone or on the beach, the applicant shall have a qualified biologist conduct a survey of the project site to determine presence of California grunion. If the biologist determines that any grunion spawning activity is occurring and/or that grunion are present in any lifestage in or adjacent to the project site, then no project activities shall occur shall occur below or within 25 feet of the semilunar high tide mark during the grunion spawning activity. The

Permittee shall have the biologist provide inspection reports after each grunion run observed and shall provide copies of such reports to the Executive Director.

5. **Marine Wildlife Monitoring and Contingency Plan (MWMCP**). PRIOR TO THE COMMENCEMENT OF MARINE OPERATIONS (including offshore and surf zone project activities), the Permittee shall prepare a MWMCP for review and approval by the Executive Director. The Permittee shall implement the MWMCP during all marine operations (e.g., pipeline removal, mooring system removal, pre- and post-project inspection surveys). The MWMCP shall include the following elements, and shall be implemented consistent with vessel and worker safety:

   (a) Prior to the start of offshore activities the Permittee shall provide awareness training to all Project-related personnel and vessel crew, including viewing of an applicable wildlife and fisheries training video, on the most common types of marine wildlife likely to be encountered in the Project area and the types of activities that have the most potential for affecting the animals.

   (b) A minimum of two qualified marine mammal observers shall be located on the derrick barge or other nearby project vessel to conduct observations, with two observers on duty during all pipeline removal activities. The MWMCP shall identify any scenarios that require an additional observer on the barge or other Project vessel and, in these cases, make recommendations as to where they should be placed to ensure complete coverage of the surrounding marine environment.

   (d) Shipboard observers shall submit a daily sighting report to the Executive Director no later than noon the following day that shall be of sufficient detail to determine whether observable effects to marine mammals are occurring.

   (e) The observers shall have the appropriate safety and monitoring equipment adequate to conduct their activities (including night-vision equipment, when applicable).

   (f) The observers shall have the authority to temporarily halt any project activity that could result in harm to a marine mammal, sea turtle or other special status species, and to and to suspend those activities until the animals have left the area. For monitoring purposes, the observers shall establish a 1,640 foot (500 meter) radius avoidance zone around the derrick barge and other Project vessels for the protection of large marine mammals (i.e., whales) and a 500-foot (152-meter) radius avoidance zone around the derrick barge and other Project vessels for the protection of smaller marine mammals (i.e., dolphins, sea lions, seals, etc.) or sea turtles.

   (g) In the event that a whale becomes entangled in any cables or lines (e.g., vessel mooring lines), the observer shall immediately notify NMFS and the Executive Director, so appropriate response measures can be implemented. Similarly, if any take involving harassment or harm to a marine mammal or sea turtle occurs, the observer shall immediately notify the Executive Director, NMFS and any other required regulatory agency.

   (i) Propeller noise and other noises associated with pipeline removal and other decommissioning activities shall be reduced or minimized to the extent feasible.

(j) In addition to on-site monitoring, the MWMCP shall describe measures to be taken during the transit of project vessels and equipment to the project site in order to minimize the risk of collisions with marine mammals and/or sea turtles. Such measures shall include, but are not limited to, restrictions on vessel speed.

(k) Marine observers and vessel operators shall monitor for and take steps to avoid observe fishing gear during vessel transit and project operations.

(l) The captain of the derrick barge and the Permittee's project management team shall be responsible for ensuring that the MWMCP is implemented.

(m) A final report summarizing the results of monitoring activities shall be submitted to the Executive Director and other appropriate agencies no more than 90 days following completion of pipeline removal and other offshore activities. The report shall include: (a) an evaluation of the effectiveness of monitoring protocols and (b) reporting of (i) marine mammal, sea turtle, and other wildlife sightings (species and numbers); (ii) any wildlife behavioral changes; and (iii) any project delays or cessation of operations due to the presence in the project area of marine wildlife species subject to protection.

6. **Limitations on Night Operations**: Project activities shall be limited to daylight hours to the maximum extent feasible. Night work shall be allowed only when necessary to (a) ensure conformance to the seasonal timing restrictions outlined in Special Condition 7, and (b) when necessary to take advantage of low-tide conditions needed for the proposed work in the surf zone and intertidal areas. Night-lighting required for Project activities shall be shielded and directed to the immediate work area to minimize light spillage into surrounding areas. Night lighting of any project vessels remaining on site shall be limited to that necessary to maintain navigational safety and to serve the nighttime site monitors who will be present on board the derrick barge.

7. **Project Timing; Closed Areas**

A. **Seasonal Timing.** Project activities shall be conducted between September 5 and May 31 of any set of years, and must be conducted consistent with the timing restrictions in **Special Condition 4**. Project activities shall not be conducted on weekends and holidays, with the exception of instances when the work requires an extreme low tide that only occurs on a weekend or holiday. No changes to the seasonal timing of the approved project shall occur without a Commission amendment to this CDP unless the Executive Director determines that no amendment is legally necessary.

B. **Closed Areas.** Open water areas closed to commercial fishing and recreational boating during project activities shall be minimized and limited to those areas necessary to carry out the project and maintain the safety of divers, other project personnel and the public. All project vessels shall be marked and lighted so as to be visible to boaters, and sea surface areas above active underwater project operations shall be clearly and appropriately demarcated.

8. **Revised Spill Prevention and Response Plan.** PRIOR TO COMMENCMENT OF DECOMMISSIONING ACTIVITIES, the Permittee shall submit a revised, Project-specific Spill Prevention and Response Plan to the Executive Director for review and

approval. The Plan shall identify the worst-case spill scenario and demonstrate that adequate spill response equipment will be available. The Plan shall also include preventative measures the Permittee will implement to avoid spills and clearly identify responsibilities of onshore and offshore contractors and the Permittee personnel and shall list and identify the location of oil spill response equipment (including booms), appropriate protocols and response times for deployment. Petroleum-fueled equipment on the main deck of all vessels shall have drip pans or other means of collecting dripped petroleum, which shall be collected and treated with onboard equipment. Response drills shall be in accordance with Federal and State requirements. Contracts with off-site spill response companies shall be in-place and shall provide additional containment and clean-up resources as needed.

9. **Prohibition on Marine Discharge**. There shall be no marine discharge of sewage or bilge/ballast water from project vessels during offshore project activities. A zero-discharge policy shall be adopted for all project vessels.

10. **Stormwater Management Plan:** PRIOR TO ANY ONSHORE PROJECT ACTIVITIES, the Permittee shall provide for the Executive Director's review and approval a Stormwater Management Plan that describes all structural and non-structural measures the Permittee will implement to avoid and minimize erosion and stormwater-related impacts during construction activities. The Plan shall identify measures the Permittee will implement to store and/or contain materials, soils, and debris originating from the project in a manner that precludes their uncontrolled entry and dispersion into nearby waters or habitat areas. Any debris that inadvertently enters coastal waters or waters shall be removed immediately. The Plan will identify Best Management Practices (BMPs) that will be implemented during project activities to prevent erosion and excessive sedimentation and to protect coastal waters and upland habitats from stormwater runoff associated with project activities.

11. **Future Soil Remediation**. The Permittee shall apply for and receive a Coastal Development Permit Amendment prior to undertaking any future soil remediation work stemming from compliance with State Lands Commission MND measure **MM HAZ-3a**, unless the Executive Director determines that no amendment is legally necessary.

12. **Shoreline Public Access Plan.** PRIOR TO THE COMMENCEMENT OF ONSHORE DECOMMISSIONING ACTIVITIES, the Permittee shall provide, for the Executive Director's review and approval, a Shoreline Access Plan. At a minimum, the Plan shall: (1) provide an alternate lateral access route for pedestrians (including appropriate signage and demarcation) along Carlsbad Boulevard, consistent with safety considerations, during periods when the western sidewalk must be closed; (2) identify the minimum necessary beach work area to be closed during the beach segment of the project; and (3) provide for lateral access along the beach to the maximum extent feasible consistent with public safety.

IV. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

Project Background

The Encina Power Station (EPS) was constructed by San Diego Gas and Electric (SDG&E) in 1953 as an oil burning, steam generating electric power plant. As such, the plant included a Marine Oil Terminal (MOT) designed to transfer bunker fuel oil between tanker vessels and onshore storage facilities. The MOT consists primarily of a 3,855-foot long oil pipeline extending the EPS to a point approximately 2,525-feet offshore, in about 60 feet of water (**Exhibit 2**). The pipeline is comprised of a 20-inch diameter, 0.5-inch wall welded steel pipe with a 2-inch thick cement coating, terminating in a 300-pound, 20-inch diameter flange. The pipeline passes beneath Carlsbad Blvd. in a concrete conduit, and beneath Carlsbad State Beach, where it is covered with a riprap groin (**Exhibit 3**). At its terminus, the pipeline is anchored to the seafloor with two 14,000-pound end anchors. The MOT also includes offshore vessel mooring systems (i.e., anchors, mooring chains, buoys), oil handling equipment (e.g., fuel oil cargo hose, pipe reducers, etc.) necessary for oil transfer to the pipeline, and onshore flow control equipment (concrete vaults, valves, etc.).

The EPS was converted to a natural gas-powered facility in the 1980s, but the MOT was retained in order to allow the use of oil as an alternate fuel source, as required by the California Independent System Operator (CAISO). Cabrillo Power I LLC (Cabrillo) acquired the EPS and MOT from SDG&E in 1999. The CAISO alternate fuel source requirement was discontinued in 2009, at which point Cabrillo began to plan for the decommissioning of the MOT.

Existing Condition

At present, the MOT is partially abandoned, having been placed in "caretaker" status after Cabrillo carried out several preliminary decommissioning activities in 2010. These activities included:

- pigging and flushing of the oil pipeline (to remove residual hydrocarbons);
- removal of the valve at the onshore end of the pipeline, charging the pipeline with potable water and corrosion inhibitors, and sealing the pipeline at both ends;
- removal of equipment at the pipeline terminus (e.g. fuel oil cargo hose, hose buoy, and steel pipe reducer);
- removal of all mooring and navigation buoys.

The fuel oil pipeline remains in place, partially buried in the seafloor sediments and, on the beach and in the surf zone, beneath the riprap groin. The pipeline end anchors, as well as the remnant anchors and chains from the MOR mooring systems and marker and navigation buoys, remain on the seafloor. The onshore segment of the pipeline, along with the underpass structures and concrete vaults, also remains in place.

State Lands Commission Lease Status

Use of State submerged lands and tidelands for the MOT was authorized by the California State Lands Commission (CSLC) in 1953 under Lease PRC 791.1, for 49 years. The original lease expired in 2002, but was continued in holdover status to allow for environmental review of a

neighboring project – the proposed extension of two groins at the entrance to Agua Hedionda lagoon – also located within the lease boundaries. When this project was eventually abandoned, Cabrillo negotiated a replacement lease to allow time for the preparation of a formal plan to remove or abandon the MOT. In February 2011, the CSLC retroactively approved a 10-year lease that expired on March 23, 2012, at which point Cabrillo was granted a 3-year lease for the continued maintenance of the partially abandoned MOT. When this lease expired in March 2015, CSLC issued a new lease extending the lease period another five years, to March 23, 2020, to allow for the completion of the proposed MOT decommissioning.

Project Description

The primary purpose of the proposed project is to carry out the final decommissioning of the remaining components of the MOT, in conformance with the terms of CSLC Lease PRC 791.1. The primary elements of the project include:

(1) Removal of the entire fuel oil submarine pipeline;
(2) Removal of all remaining offshore structures, equipment and debris (e.g., anchors, chains, buoys, etc.);
(3) Partial removal and/or abandonment in place of onshore structures ancillary to the pipeline (e.g., beach valve pit, electrical and piping components, road underpass structures);
(4) Temporary removal of the riprap groin, reconstruction of the groin after the underlying fuel oil submarine pipeline has been removed, and restoration of the beach.

For planning purposes, the proposed project can be divided into onshore, beach, surf zone, and offshore work segments (**Exhibit 2**). The 3,855-foot long fuel oil submarine pipeline passes through all four segments, with each requiring specific methods and equipment to perform the proposed decommissioning work. Each project segment is described in greater detail below.

Onshore Segment

The onshore segment encompasses approximately 110-feet of the fuel oil pipeline between the EPS grounds and the eastern (inland) edge of the beach (**Exhibit 3**). Moving from east to west, the primary facilities within this segment include:

- a section of the fuel oil pipeline and a fill line connecting to the EPS tank farm;
- a "beach valve pit", consisting of a below-grade, 14-foot x 12-foot, 15-foot deep reinforced concrete vault, originally containing flow control equipment linking the fuel oil pipeline to the fill line, now containing the termini of these pipelines; also includes above-ground structures (see **Exhibit 3**, p. 3);
- a buried, 17-foot long, rectangular concrete shaft linking the beach valve pit to the underpass conduit;
- an 8-foot diameter concrete underpass conduit running beneath Carlsbad Blvd.;
- an underpass end structure, consisting of reinforced concrete retaining walls ("wing walls") extending 10 feet on either side of the pipeline conduit, and a below-grade reinforced concrete vertical vault and horizontal shaft providing access to the pipeline conduit (see **Exhibit 3,** p. 4).

Decommissioning work for this segment includes the complete removal of the fuel pipeline and the partial removal or abandonment-in-place of the other structures. Prior to removal, the pipeline would be purged to remove the fluids inside, and then cut into pieces. The pipeline sections would then be dragged one at a time from the conduit into the beach valve pit, where they would be raised by crane into the EPS yard and placed on trucks for off-site disposal and recycling. The fill line (which originally linked the oil pipeline to the EPS tank farm) would be plugged with cement and abandoned in place (after removal of the fill line pipe stub within the beach valve pit).

All electrical components, piping and other appurtenances (including above-ground components) would be removed from inside the beach valve pit, underpass conduit and underpass end structure prior to final disposition. Unless soil contaminant sampling reveals that more extensive remediation is necessary, Cabrillo proposes to remove the upper portions (above 5 feet below grade) of the beach valve pit and abandon the lower portions of the vault in place. The upper concrete walls would be broken down, removed by crane to the EPS yard, and transferred off-site for disposal. The vault would then be backfilled with native sand and soil (from approved off-site sources). The underpass conduit and rectangular horizontal shafts connecting to the beach valve pit and underpass end structure would be filled with cement and abandoned in place. The vertical vault portion of the underpass end structure would be fully removed, while the wing walls and concrete footing of the structure would be abandoned in place. Because the underpass end structure and vertical vault are completely buried underneath the beach, the proposed work would require the temporary excavation of approximately 452 cubic yards of sand and/or rip rap in order to expose the vault. Excavated beach sand and riprap would be stockpiled on the beach and used for backfill to pre-project contours after the vault is removed.

Cabrillo states that abandoning the horizontal shafts, underpass conduit, and underpass end structure wind walls in place would avoid the need to temporarily shut down Carlsbad Blvd. to allow for excavation and removal of these structures, and would minimize disturbance to the roadway sub-grade and sub-base. However, removal of the end structure vertical vault may require demolition and replacement of the sidewalk on the western side of Carlsbad Blvd., where it crosses the underpass end structure (**Exhibit 3**).

Project work areas and staging areas for the onshore segment are shown in **Exhibit 3**, p. 2.

Beach Segment

The beach segment extends approximately 220 feet from the underpass end structure into the intertidal zone, near the mean low water line (**Exhibit 3**). Facilities within this segment include a buried section of the fuel oil pipeline and a riprap groin covering the pipeline. The actual dimensions of the groin are unknown, but at its widest visible point, the groin measures approximately 55 feet, and it may extend approximately 250 feet seaward from the underpass end structure line. Decommissioning work for this segment would include the following activities:

- Temporary removal of the riprap groin to expose the fuel oil pipeline, with temporary storage of the displaced rocks and sand on the beach in a designated area;

- Excavation and permanent removal of the fuel oil pipeline. Prior to removal, the pipeline would be flushed with seawater to remove residual fluids. As it is excavated it would be cut into sections and trucked off-site for disposal or recycling;
- Backfilling of the pipeline trench with native sand, followed by reconstruction of the riprap groin to its original dimensions, in its pre-project location.

The proposed work would be carried out by land-based crews and heavy equipment (e.g., bulldozer, front end loader, crane) operating on the beach. To dismantle the groin, sand would be pushed up from the beach onto the groin to provide a temporary pad for a crawler crane to reach the seaward end of the groin, from which point the crane would use rock tongs to remove the riprap, working progressively landward. Cabrillo expects that excavation of the beach to a depth of up to 10 feet may be necessary to fully expose the groin, possibly requiring the use of temporary shoring to secure the walls of the excavated area. An approximately 48,000-square foot (1.1 acre) area of the beach would be temporary closed due to the planned excavation around the groin and for use as a sand and riprap stockpile area (see **Exhibit 3**, p. 2). All work and heavy equipment use in the intertidal zone would be conducted during extreme low tide conditions.

Surf Zone Segment

The surf zone segment extends from the approximate mean low water line to a point approximately 750 feet offshore, near the -15 foot bathymetric contour. Facilities within this segment include the submarine fuel oil pipeline and the seaward end of the riprap groin. Decommissioning work for this segment would include the following activities:

- Temporary removal of the riprap groin to expose the fuel oil pipeline, with temporary storage of rock on the beach;
- Excavation and permanent removal (if feasible) of the fuel oil pipeline. Depending on how deeply the pipeline is buried beneath nearshore sediments, removal could require the use of dynamic pipe-ramming techniques. As the pipeline is progressively exposed, it would be pulled offshore, raised to the surface and cut into pieces at an anchored barge, transported to shore, and trucked to an off-site disposal or recycling facility;
- Backfilling of the pipeline trench with native sand and reconstruction of the riprap groin to its pre-project contours.

Decommissioning activities in the surf zone would involve both land-based and offshore crews and equipment. As with the beach segment, on-shore work in the surf zone would be conducted during extreme low tides, while the offshore barge (or other floating support equipment) would, for safety reasons, be located seaward of the minus-15 foot bathymetric contour. In its CDP application materials, Cabrillo notes that both conventional and pipe-ramming approaches to pipeline removal in the surf zone could fail, necessitating the abandonment in place of this segment of the fuel oil pipeline. In the event that all or part of the pipeline is to be abandoned in place, its ends would be opened and allowed to fill with sand.

Offshore Segment

The offshore segment of the project extends from the back side of the surf zone (at the approximate -15 foot depth contour) to the pipeline terminus, approximately 2,525 feet offshore,

at a water depth of about 60 feet (**Exhibit 2**). Facilities within this segment include the submarine fuel oil pipeline and all remaining mooring equipment (i.e., anchors and mooring chains). Decommissioning work for this segment would include the following activities:

- Removal of the pipeline end anchors, 90-foot anchor chains, and pipeline collar fasteners;
- Permanent removal of the fuel oil pipeline. Once the end of the pipeline is freed from the anchoring system, it would be excavated (as necessary), progressively raised intact to the deck of a derrick barge, and cut into sections. If this method ("reverse pipe lay") proves infeasible, the pipeline would be cut on the seafloor by divers and then raised to the barge in pieces. In either case, the sections would then be transferred to shore and trucked off-site for disposal or recycling;
- Removal of all remaining components of the tanker berth mooring systems, marker buoys and navigation buoys;
- Removal of all seafloor debris associated with the tanker berth. Pre-and post-decommissioning seafloor surveys would locate debris in the project vicinity, which would then be examined by divers, and, if derived from MOT or project operations, recovered and disposed of off-site.

Offshore decommissioning activities would require the use of a large derrick barge equipped with a crane and pull winch for lifting pipeline segments, anchors and chains, and other seafloor debris to the surface. Several other smaller support vessels, including tug boats and a crew boat, will be used for purposes such as transferring crews and equipment and diver support. Trained dive teams would be employed during pipeline removal, mooring system retrieval and post-project debris surveys and recovery efforts.

Project Schedule

Cabrillo anticipates carrying out the project during the fall and early winter months, between September and January, of two successive years, beginning in the fall of 2016 and ending in January of 2018. In its preliminary project schedule, the onshore and offshore segments of the project would be carried out between November and early January of 2016-2017, while the beach and surf zone segments would be conducted between September and January of 2017-2018. However, Cabrillo has indicated that it could become necessary to extend project activities further into the winter months.

B. Other Agency Approvals

California State Lands Commission

The California State Lands Commission (State Lands) is the lead agency under the California Environmental Quality Act (CEQA) for the proposed project. On December 18, 2015, the State Lands certified a Mitigated Negative Declaration (MND) and Mitigation Monitoring Program for the proposed project, and issued a five-year general lease of state submerged lands (Lease No. PRC 791.1), beginning March 24, 2015, for the continued maintenance and removal of the Marine Oil Terminal.

City of Carlsbad

The onshore portions of the project above the mean high tide line would occur within the City of Carlsbad, which has a certified Local Coastal Program. However, the project area is located

within the Agua Hedionda Lagoon Segment of the LCP, an area of deferred certification, and thus the Commission will consider both the onshore and offshore portions of the project as part of a CDP. Several City-issued permits (e.g., demolition permit, grading permit, roadway encroachment permit) may be required for certain project activities.

San Diego Regional Water Quality Control Board (RWQCB)
The RWQCB regulates pollutant discharges into receiving waters in the project area. On June 10, 2016, Cabrillo submitted an application for water quality certification pursuant to Clean Water Act Section 401. The RWQCB is currently reviewing the Cabrillo's application.

U.S. Army Corps of Engineers
The U.S. Army Corps of Engineers (ACOE) has regulatory authority over the proposed project under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 1344) and Section 404 of the Clean Water Act. Cabrillo requested federal authorization from the ACOE under Nationwide Permit Nos. 3 (Maintenance) and 27 (Aquatic Habitat Restoration, Establishment and Enhancement Activities) on June 10, 2016. The ACOE is currently reviewing this request.

Pursuant to Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), any applicant for a required federal permit to conduct an activity affecting any land or water use or natural resource in the coastal zone must obtain the Commission's concurrence in a certification to the permitting agency that the project will be conducted consistent with California's approved coastal management program. The subject coastal development permit (9-16-0560) will serve as Commission review of the project under the CZMA.

C. PLACEMENT OF FILL IN COASTAL WATERS
Coastal Act Section 30233(a) states:

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
>
> *(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
>
> *(5) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*

(6) Restoration purposes.

(7) Nature study, aquaculture, or similar resource dependent activities.

Coastal Act Section 30233(a) imposes three tests on a project that includes dredging and/or fill of open coastal waters. The first test requires that the proposed activity must fit into one of the seven categories of uses enumerated above. The second test requires that there be no feasible less environmentally damaging alternative. The third test requires that feasible mitigation measures be provided to minimize the project's adverse environmental effects.

The proposed reconstruction of the groin following the removal of the fuel oil pipeline would place riprap fill on an approximately 11,000 square foot (0.25 acre) area of Carlsbad State Beach, extending below the mean high tide line into coastal waters. In the absence of the fuel oil pipeline which the original groin was constructed to protect, the rebuilt groin would no longer comprise a portion of an energy facility, and would not fit into any of the seven categories of uses listed above. Thus, the proposed placement of riprap fill in coastal waters as a part of the reconstructed groin would be inconsistent with the "allowable use" test of Section 30233(a). Because this aspect of the project is inconsistent with Section 30233(a), the Commission is including **Special Condition 3**, which requires Cabrillo to properly dispose of the riprap groin that it removes as part of the proposed project. This condition requires the removal of the rock to a proper storage or disposal location off of the beach and outside coastal waters.

As conditioned, the Commission finds that the proposed project would avoid impermissible fill of coastal waters, and therefore would not be inconsistent with Coastal Act Section 30233.

D. MARINE RESOURCES AND WATER QUALITY

Section 30230 of the Coastal Act states:

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

Section 30231 of the Coastal Act states:

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

Coastal Act Section 30232 states:

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

Much of the pipeline removal and other MOT decommissioning work would take place in the marine environment. The fuel oil pipeline extends from the EPS (see **Exhibits 1** and **2**) to a point approximately 2,525 feet offshore, in 60 feet of water. The project area thus traverses a range of coastal environments, including sandy beach, soft-bottom and hard-bottom seafloor, and the nearshore ocean, supporting ecologically significant habitats and species. Proposed project activities include heavy-equipment use, excavation and materials storage on the beach, and the removal of the fuel oil pipeline and MOT mooring systems offshore. Pipeline removal activities are likely to require the excavation and disturbance of seafloor sediments, and in the surf zone, may require the use of dynamic pipe ramming techniques. These activities have the potential to affect several different marine resources, including marine vegetation, benthic species, fish, marine mammals and sea turtles.

Beach and Intertidal Habitats

Decommissioning activities proposed to take place on Carlsbad State Beach include the removal and reconstruction of the existing riprap groin, excavation and removal of the fuel oil pipeline, and temporary storage of riprap and equipment on the beach.

Beach and intertidal areas in the project vicinity consist of seasonally-variable sandy shoreline, with some exposed cobble during the winter months and high-wave periods. These sandy habitats support a variety of common invertebrates species, including isopods, amphipods, Pismo and bean clams, mole crab, opossum shrimp and polychaete worms (City of Carlsbad 2005), many of which have an important ecological role as prey for shorebirds and fish.

During the spring and summer months, the beach and intertidal areas of the project site provide spawning habitat for the California grunion (*Leuresthes tenuis*), a native fish species that spawns in intertidal beach habitats during very high tides in the spring and summer. Grunion spawning occurs immediately following spring tides (high tides that occur during the full and new moons) from March through August, and occasionally in February and September, with peak spawning in late March to early June (CDFW 2016). The eggs are incubated in the sand until the following series of spring tides, approximately 10 to 15 days, when the eggs hatch and are washed into the sea. California grunion is a species of concern due to its unique spawning behavior and a history of habitat modification and overharvesting. The CDFW enforces seasonal closures on the harvest of grunion in order to protect the species during their peak spawning season.

The proposed project would result in both temporary and permanent adverse impacts to sandy beach and intertidal habitats at Carlsbad State Beach. Excavation and the use of heavy equipment during the removal of the riprap groin and excavation and removal of the fuel oil pipeline would result in the physical disturbance of habitat and the potential loss of infauna not able to move quickly enough to avoid the disturbance. In particular, any project activities within the intertidal zone during spawning periods could disturb adult grunion during the run period

and/or bury incubating grunion eggs. The storage of the riprap and excavated material on the beach (see **Exhibit 3**) would result in the temporary burial of additional sandy beach habitat areas. However, these impacts would be temporary and limited to the approximately three month period during which the beach and surf zone segments of the project are planned to be carried out.

In contrast, the proposed reconstruction of the groin would result in the permanent loss or modification of an approximately 13,000 square foot (0.3 acre) area of sandy beach and intertidal habitat, which would instead be filled with riprap. As discussed in greater detail in Section IV.F, below, the rebuilt groin would no longer be necessary to protect the fuel oil pipeline, which is proposed to be removed, and Cabrillo has not provided evidence that the rebuilt groin is either necessary for protecting the public beach or is the least environmentally-damaging alternative for doing so. Although the area of beach and intertidal habitat that would be filled by the groin is small relative to the total area of these habitats in the project vicinity, the proposed groin reconstruction would forego a feasible opportunity to enhance and restore these habitats, as required by Sections 30230 and 30231.

In order to avoid and minimize project impacts to sandy beach and intertidal habitats, and to maintain, enhance and restore the biological productivity of these resources, the Commission is including **Special Condition 3**, which requires Cabrillo to properly dispose of the riprap groin that it removes as part of the proposed project. This condition requires the removal of the rock to a proper storage or disposal location off of the beach and outside coastal waters.

Impacts to Grunion

The anticipated timing of the project during the fall and early winter months would avoid the peak spawning season of the California grunion. However, project activities in early September could overlap with late-season spawning, while unanticipated project overruns into the late winter or spring could affect early spawning. To reduce the potential for adverse impacts to grunion, Cabrillo has proposed to implement the following avoidance measures ("applicant proposed measures", "APM"):

> ***APM BIO-1a: Grunion Avoidance.*** *Intertidal activities will be scheduled outside of the grunion spawning season, which is generally three or four nights after the highest tide associated with each full or new moon and then only for a 1- to 3- hour period each night following high tide from late February or early March to August or early September.*
>
> ***APM BIO-1b: Grunion Surveys and Avoidance.*** *If scheduling is not possible under APM BIO-1a, intertidal grunion surveys will be conducted during grunion spawning tidal periods to document that grunion have not used the site. Intertidal activities shall not occur if grunion spawning is observed in the Project area.*

In order to ensure that impacts to California grunion are avoided, the Commission is adopting **Special Condition 4**, which incorporates these measures as modified to specify that (a) the "grunion spawning season" be defined as the seasonally predicted run and egg incubation period as identified by the CDFW; and (b) that the presence of grunion at any life stage during the

required surveys triggers the prohibition of project activities in any part of the intertidal zone below the semilunar high tide mark, and on the beach within 25 feet of this mark.

As conditioned, the proposed project would not result in significant adverse impacts to beach and intertidal habitats or organisms. Decommissioning activities inland of the beach would be limited to developed areas, including the EPS grounds and the oil pipeline corridor beneath Carlsbad Boulevard, and would not adversely affect sensitive terrestrial habitats and species.

Benthic Habitats

The proposed MOT decommissioning activities, including the excavation and removal of the fuel oil pipeline from the seafloor, retrieval of mooring system components, and placement and setting of project vessel anchors, have the potential to adversely affect benthic habitats and associated biota in the project area. These impacts would occur for the most part in areas of soft-bottom, sandy seafloor offshore of the EPS, but could also extend into more sensitive kelp beds and hard substrate areas adjacent to the project site (**Exhibit 4**).

Soft Bottom Seafloor

Soft bottom areas are unconsolidated sediments (e.g., gravel, coarse-grained and mixed sediments, sand, and mud) that provide habitat to epifaunal (surface living) and infaunal (below-surface living) organisms. Most of the proposed project activities, including the removal of the offshore and surf zone segments of the fuel oil pipeline, would occur within sandy seafloor habitats at water depths of less than 60 feet. Project impacts to soft bottom areas are of potential concern because: (1) the proposed oil pipeline excavation, removal of MOT anchors and moorings, and placement of anchors for project vessels would disturb the habitat of both epifaunal and infaunal benthic organisms; (2) infaunal organisms have limited mobility and cannot easily escape habitat disturbance or rapidly; and (3) the infauna provides a source of food for more mobile epifaunal and pelagic marine organisms such as crabs, fin fish, and marine mammals.

Previous biological surveys of the sandy-bottom areas offshore of the EPS have found a low diversity of infaunal invertebrates, including a polychaete, proboscis and tube-building worms, along with epifaunal organisms such as sea spiders, crustaceans, sea pens and sand dollars, but numerous species of demersal and pelagic fish (Le Page and Ware 2001; City of Carlsbad 2005; Merkel & Associates 2013). No eelgrass is known to occur in the project area (City of Carlsbad 2005).

While some impacts to common benthic invertebrate and fish species in areas around the fuel oil pipeline and MOT would occur as a result of project activities, the soft-bottom habitat areas that would be disturbed are small relative to the geographical extent of this habitat type offshore of San Diego County. In a recent sonar survey, approximately half of the offshore pipeline was found to be exposed at the surface, with the rest covered by a relatively thin layer of sediment; as a result, the amount of excavation and sediment displacement required during pipeline removal would be limited, and confined to the area immediately adjacent to the pipeline. The removal of existing mooring anchors and chains and the setting of the anchors needed to stabilize the derrick barge would disturb additional small areas of soft bottom habitat. Moreover, the disturbances to soft-bottom habitats associated with the surf zone and offshore project segments would be

temporary, occurring within 2-3 month periods in successive years, and ceasing at the end of the project. It is expected that over time the disturbed sediment would be redistributed over the project area by the same processes (wave action, currents, etc.) that are the primary source of natural disturbance in this dynamic environment. In addition, many beach and soft substrate organisms are mobile and capable of re-colonizing an area following temporary sediment disturbance. Studies have shown that other factors, including the fact that project-related disturbances would not involve the removal of sediment, and the close proximity of the disturbed sediments to undisturbed sediments, would tend to minimize the amount of time needed for recolonization and recovery by benthic organisms.

For these reasons, the proposed pipeline excavation and removal, removal of existing mooring anchors and chains, and anchoring of project vessels would not result in significant adverse impacts to soft bottom habitats or organisms to the extent that would necessitate mitigation requirements.

Hard Substrate Seafloor

Hard substrate is exposed rocky seafloor area that provides habitat for a diverse group of plants and animals. Hard substrates, including rocky bottoms, rock outcrops, and rock crevices, provide habitat and shelter for numerous sessile organisms, demersal fishes, and mobile invertebrates such as lobsters and crabs. Hard substrates also provide the necessary anchoring sites for macroalgae such as giant kelp (*Macrocystis pyrifera*), one of the more visible and iconic marine organisms of the California coast. The kelp forests of coastal Southern California are highly productive and species-rich, in large part due to the multi-layered vertical habitat they provide. Over 50 fish species, 130 species of plants and macroalgae and almost 800 species of invertebrates are known to inhabit Southern California kelp forests, making them both ecologically and economically important.

Offshore of Southern California, hard substrate habitats and their associated biota are relatively rare, and therefore any effect on them is potentially significant. In particular, impacts to hard substrate are significant because: (a) rocky reefs and other hard substrate habitats comprise a small fraction of the seafloor area; (b) they support a diverse and productive assemblage of epifaunal invertebrates; (c) they attract fish as a nursery ground, food source, and as shelter; (d) epibiota residing on rocky substrates are sensitive to mechanical disturbance and increased sediment loads; and (e) hard bottom ecosystems are slow to recover from direct impacts.

Previous offshore surveys have documented the presence of kelp forest and other hard substrate benthic habitats in the project vicinity (City of Carlsbad 2005; MBC Applied Environmental Sciences 2012; Merkel & Associates 2013; Fugro Pelagos 2013). A relatively large area of rocky substrate, including a significant kelp bed, is located approximately 500 feet south of the fuel oil pipeline; a northern extension of this rock outcropping lies just 100 feet south of the pipeline (see **Exhibit 4**; Merkel & Associates 2013; Fugro Pelagos 2013). Long-term monitoring indicates that the kelp bed immediately offshore of the EPS has varied in size between zero and 100 acres over the past fifty years in response to environmental variables (MBC Applied Environmental Sciences 2012). During the most recent survey, in 2013, this kelp bed was estimated to cover approximately 12 acres (Merkel & Associates 2013). A smaller kelp bed associated with other rocky substrate is located approximately 3600 feet (0.7 mi) north of the

fuel oil pipeline. The hard substrate habitats offshore of the EPS are dominated by giant kelp, but also support a variety of other macroalgae and provide foraging and sheltering habitat for fish species such as kelp and sand bass, surfperch, California sheepshead, senorita, topsmelt and rock wrasse. Marine invertebrates found in these rocky seafloor areas include lobster, crabs, polychaete worms, sea fans, sea urchins, dog whelk and species of encrusting bryozoans, tunicates, hydrozoans and sponges.

The proposed pipeline removal and other MOT decommissioning work would occur outside of hard substrate habitat areas, and would thus avoid most direct impacts to these resources (**Exhibits 4, 5**). However, the project has the potential to adversely affect adjacent kelp beds and rocky seafloor habitats and species due to (a) the setting or dragging of anchors during the situating of project vessels, in particular the large derrick barge needed for the pipeline removal work, and (b) disturbance of seafloor sediments and turbidity during pipeline removal activities. Placement and dragging of anchors and/or anchor lines from project vessels could result in scraping, scouring and other physical damage of rocky habitat and kelp beds, while turbidity and sediment redistribution could in the burial of hard substrate habitats and organisms and/or reduction in light penetration and photosynthesis in kelp beds.

As a part of its CDP application, Cabrillo submitted a Marine Safety and Anchoring Plan (MSAP) identifying a total of 12 proposed mooring locations for the derrick barge that would be used during marine decommissioning activities. Based on this preliminary anchor pre-plot shown as **Exhibit 5**, the proposed anchoring locations would avoid all hard substrate and kelp bed areas; however several of the proposed anchor locations (e.g., 12C, 12D, 12E, 11C) would be less than 200 feet (and as close as 50 feet) from hard substrate or kelp areas. In order to avoid and minimize the potential for adverse impacts to these resources from anchoring, the Commission is including **Special Condition 2**, which would incorporate into this permit State Lands Commission Mitigation Measures (MMs) **BIO-5** and **BIO-6** (see MND pp. 3-48, 3-50). **MM BIO-5** requires Cabrillo to (a) conduct a pre-decommissioning seafloor survey of the project area (to serve as a pre-project baseline of seafloor conditions) and (b) to position the derrick barge anchorages to avoid rock outcroppings and kelp beds. **MM BIO-6** requires Cabrillo to prepare a final Marine Safety and Anchoring Plan based on the results of the pre-decommissioning seafloor survey; additionally, **MM BIO-6** requires that Cabrillo conduct a dive survey, by a qualified biologist, to ensure that all pre-determined vessel anchor locations would avoid rocky substrate and kelp by at least 50 feet.

As noted above, pipeline removal will result in some disturbance of seafloor sediments, and will likely generate a minor amount of turbidity. However, because the majority of the pipeline is either exposed on the seafloor or covered by only a thin layer of sediment, and because the sediment in the project area consists predominantly of sand, offshore decommissioning activities would not generate large or persistent turbidity plumes, and suspended sediments would settle nearby the point of disturbance. Particularly in the shallower portions of the project area that are nearest to hard substrate habitat, turbidity generated by pipeline removal activities is expected to be less severe than that which arises naturally during winter storms and large wave events.

For these reasons, and as conditioned, offshore decommissioning activities would not result in significant adverse impacts to hard substrate habitats and organisms.

Marine Wildlife

A number of special-status marine mammal and sea turtle species occur in the nearshore waters off of Southern California, and could be adversely affected by the proposed project. These include four species of sea turtles, 22 species of cetaceans (whales, dolphins, and porpoises), five species of pinnipeds (seals and sea lions), and one species of fissiped (sea otter). The project vicinity supports local populations of marine mammals including common dolphins, Pacific white-sided dolphins, bottlenose dolphins, California sea lions, harbor seals, and Southern sea otters, as well as migrating populations of California gray whales (*Eschrichtius robustus*). Sea lions, harbor seals, dolphins and sea otters inhabit coastal waters off of San Diego County on a year-round basis, while gray whales migrate through the area twice each year, between December – February (southern migration) and February – May (northern migration). The Southern sea otter is a federal- and state-listed threatened species; the other marine mammal species are protected under the Marine Mammal Protection Act. Though extremely rare, leatherback, green, loggerhead and olive ridley sea turtles have also at times been observed off the Southern California coast and have the potential to occur in the project area.

There are several potential types of impacts to marine mammals and other wildlife due to the proposed project activities, including collisions with project vessels, harassment or injury during project operations, and, more specifically harassment or injury as a result of high levels of underwater sound generated by dynamic pipe ramming during the removal of the oil pipeline.

Collisions with Project Vessels and Impacts During Project Operations

The offshore location of the proposed project places it within potential foraging and migration areas of marine mammals and turtles, raising the possibility of collisions with or harassment from project vessels during marine operations. Incidents with marine wildlife could occur during several phases of the project: (a) vessel transit between the project site and the probable shore base(s) of the project vessels in Oceanside, Long Beach, Los Angeles, or San Diego; (b) the removal of anchors, chains, and the fuel oil pipeline; (c) the transport of the removed equipment by barge to recycling and disposal sites in San Diego, Long Beach or Los Angeles; and (d) pre- and post-decommissioning seafloor surveys. Project activities could also result in the harassment of marine wildlife entering the project area. The potential for adverse impacts to marine animals from project activities would be heightened during night work, when poor visibility would increase the risk of collisions and artificial lighting associated with the project could become an attractive nuisance or disrupt the behavior of sensitive species.

The Commission has determined in reviewing previous offshore projects that the most effective way to prevent disturbance of special status species in offshore areas, and to avoid marine mammal or sea turtle collisions with project vessels, is to (a) time in-water activities so that they occur, as much as possible, outside of known migratory seasons, and during daylight hours; and (b) monitor effectively for the presence of these species in the project area and during project activities and vessel transit.

For the most part, project activities are scheduled to avoid the gray whale migration period (December through May); however, decommissioning activities on several project segments are anticipated to extend into the months of December and January, and thus into the early part of

the gray whale migration period. Unanticipated project overruns could also extend the project further into the winter months. The proposed project schedule is based on a five-day, 12-hour per day work week, which would avoid extensive night work; however, Cabrillo states that additional hours, including 24-hour operations, may be required to maintain the project schedule and to take advantage of low tide conditions for work in the surf zone.

The Final MND states that project-related vessel activity would "increase the probability of marine vessel and marine wildlife interactions, including collisions", but that such interactions, though possible, "are considered … unlikely" (MND p. 3-38). The MND also requires the submission of a Marine Wildlife Contingency Plan (MWCP) to reduce potential adverse effects to marine wildlife (mitigation measure MM BIO-1, MND p. 3-38). As a part of its CDP application, Cabrillo provided a MWCP meeting the specifications of MM BIO-1, including the following measures:

- Provision of a qualified marine wildlife monitor (MWM) during vessel transit and all marine operations associated with the project;
- MWM can request that operations be altered or ceased if an animal is "being negatively affected."
- Implementation of vessel handling and harm avoidance measures (e.g., minimum 100 meter distance, speed reductions, etc.) to reduce the risk of collisions and/or harassment during vessel transit;
- Pre-decommissioning training seminar to educate project personnel.
- Provisions for recording and reporting marine mammals and sea turtles observed during project activities;
- Provisions for reporting a vessel collision with marine wildlife.

Implementation of the submitted MWCP is likely to decrease the risk of adverse interactions and collisions between marine wildlife and project vessels. However, the MWCP lacks specific provisions necessary to protect and minimize the potential for harm to marine species, as required under Sections 30230 and 30231 of the Coastal Act. For example, for previous offshore projects of similar scope, the Commission has generally specified a minimum of two marine wildlife monitors to ensure adequate coverage of the project area, identified an appropriate marine wildlife "avoidance zone" to be monitored, and required that MWMs have full authority to halt project operations when marine mammals or sea turtles are sighted within the avoidance zone radius and are at risk of harm.

Thus, consistent with previous approvals of major offshore projects, the Commission is including additional mitigation measures to ensure that adverse impacts to marine mammals and sea turtles are minimized and healthy populations of marine organisms are maintained. **Special Condition 5** requires Cabrillo to submit a Final Marine Wildlife Monitoring and Contingency Plan (MWMCP) to the Executive Director for review and approval prior to beginning project operations. The Final MWCP shall include measures similar to those contained in MM BIO-1 and the submitted MWCP, but shall also require that a minimum of two qualified marine wildlife observers be present during both project vessel transit and project operations, the establishment of 500-foot and 1640-foot avoidance zones, for smaller mammals and large cetaceans, respectively, and several additional mitigation and reporting requirements. **Special Condition 6**

imposes limitations on night-work in order to minimize the adverse impacts of artificial lighting during project activities.

With these conditions in place, the potential for adverse impacts to marine mammals, sea turtles and marine birds from collisions with project vessels or harassment and injury from project activities will be minimized.

Impacts from Project-related Underwater Sound
Another potential impact to marine wildlife from project activities would be from elevated levels of underwater sound associated with the possible use of dynamic pipe ramming (DPR) to extract the fuel oil pipeline from the seafloor in the surf zone (see Section IV.A, above). Marine mammals, sea turtles and fish are known to be susceptible to disturbance and injury from high levels of human-generated underwater sound.

The proposed use of DPR during pipeline removal in the surf zone has the potential to adversely affect marine mammals due to the elevated underwater sound levels that would occur during this activity. Marine mammals rely on sound to navigate, and find food, mates, and companions. Elevated levels of human generated underwater sound have been shown to interfere with these activities and in some cases to cause internal injury, stranding, and mortality. Under the Marine Mammal Protection Act, the National Marine Fisheries Service (NMFS) defines acoustic thresholds of harassment for marine mammals. Level A harassment corresponds to sound levels that can result in injury, whereas Level B harassment can result in disruption of behavioral patterns. Previous NMFS guidance documents established harassment thresholds for broad categories of wildlife for both pulsed and continuous sources of sound. For example, for cetaceans, exposure to pulsed sounds of 180 dB re 1 µPa or above was considered Level A harassment, while Level B harassment was determined to occur at pulsed sound levels above 160 dB re 1 µPa and continuous sound levels of 120 dB re 1 µPa, but below thresholds for Level A harassment.[1] However, in its most current guidance documents, the July 2016 *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing*, NMFS provides more specific acoustic thresholds, taking into account the duration, repetition rate and sound frequency composition of different noise sources, as well as the varying hearing ranges and sensitivities of different marine mammal species.

An underwater noise analysis (Greeneridge 2015) commissioned by Cabrillo compared potential sound levels, at a range of frequencies, generated by vibratory pile driving (as a proxy for dynamic pipe ramming) to the functional hearing frequency ranges of marine mammals likely to occur in the project area. The analysis found that underwater sound generated during DPR would at least partially overlap the hearing ranges of whales (including California gray whale), dolphins, and pinnipeds that could occur in the project area. The proposed dynamic pipe ramming was not expected to result in injury or mortality to marine mammals and sea turtles, but could generate sound levels (of up to 180 dB at certain frequencies) that could result in behavioral changes and Level B harassment. Moreover, this analysis was based on previous research on the sound levels generated by vibratory pile driving, and at best can only provide an estimate of the sound levels that would result from dynamic pipe ramming.

[1] Decibel (dB) references in this report are for underwater sound and use the water (not air) standard (i.e., re 1 µPa).

In order to prevent and minimize damaging effects of underwater sound on marine mammals, the State Lands Commission, in the MND, is requiring the implementation of the following mitigation measures:

> ***MM BIO-2: Dynamic Pipe Ramming (DPR) Soft-Start and Ramp-Up Procedure.*** *The contractor conducting DPR operations shall begin the procedure at a reduced level and repeat the sound producing activity, gradually increasing the intensity of the operation prior to initiating normal construction levels. The duration of the ramp-up during Project operations shall be determined by a qualified marine biologist and based upon the findings of a sound source characterization study for DPR. This procedure will be used any time DPR operations are initiated.*
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> ***MM BIO-3: Dynamic Pipe Ramming (DPR) Sound Source Characterization.*** *Prior to DPR operations, a marine acoustics specialist shall be retained to conduct underwater noise measurements during a trial operation of the equipment at the Project site. In coordination with the National Oceanic and Atmospheric Administration (NOAA), the results of the underwater noise measurements shall be used to determine preclusion radii for marine wildlife (mammals and reptiles) safety during DPR operations based on NOAA's acoustic thresholds in place at the time of Project operations for permanent and temporary threshold shifts. A copy of the sound source characterization shall be provided to California State Lands Commission staff and NOAA within 2 weeks of completion.*
>
> ***MM BIO-4: Marine Wildlife Monitoring During Sound Source Characterization and Dynamic Pipe Ramming (DPR).*** *Qualified marine wildlife monitors (MWMs) shall be onsite and present throughout sound source characterization and DPR operations. Once the marine wildlife preclusion radii (i.e., safety zone) have been determined, MWMs shall be located such that he/she has a clear view of the marine waters within the safety zone and beyond. The MWMs shall indicate that a designated safety zone is clear of marine wildlife (mammals and reptiles) prior to the start of DPR operations and shall have the authority to stop DPR operations if marine wildlife is observed at any time within the safety zone. The initial safety zone to be implemented during sound source characterization will be 1,000 feet. The initial safety zone will be revised to reflect new thresholds for permanent and temporary threshold shifts (PTS and TTS) should they be finalized by the National Oceanic and Atmospheric Administration prior to Project operations. The safety zone to be implemented during DPR will be modified as necessary based on the sound source characterization results and will reflect the PTS and TTS thresholds in place at the time of Project operations.*

As indicated in **MM BIO-4**, a 1,000-foot safety zone would be implemented during sound source characterization. This safety zone is based upon a conservative model of acoustic propagation for the DPR proxy provided by Greeneridge (2015), which indicates that the safety radii for a received level of 180 dB re 1 µPa is 260 m or 853 feet. The "new thresholds" referenced in **MM BIO-4** are those that were recently adopted by NMFS in its July 2016 technical guidance. Thus, **MM BIO-4** ensures that the new, more specific acoustic thresholds will be used to determine the marine mammal safety zone(s) to be implemented during any dynamic pipe ramming activities. The Commission is adopting these MND mitigation measures as a part of **Special Condition 2** in order to enable the Commission staff to review the

subsequent analyses, determinations, and monitoring, in order to ensure that sound-related impacts to marine mammals will be minimized.

The elevated underwater sound levels may also result in adverse impacts to sea turtle and fish species. While the current level of scientific understanding of these impacts remains incomplete, several studies carried out in recent years suggest that physical injury to fish may result from both instantaneous exposure to a maximum sound pressure level as well as from accumulated exposure to a lower sound level over a longer period of time. Hearing capabilities vary considerably between fish species and within fish groups due to the range of physiological differences in how fish detect and translate sound. As a result, mortality and injury to fish as a result of sound varies depending upon the anatomy and physiology of the fish. For example, mortality and injury thresholds for fishes with swim bladders are lower than for fishes without swim bladders. Sea turtles appear to be sensitive to low frequency sounds in a range similar to that of low-frequency cetaceans, but it is thought that sea turtle hearing may be more similar to that of fish than marine mammals. As a general matter, peak sound levels and cumulative sound exposure levels above and 207 dB re 1 µPa and 210 dB re 1 μPa^2 per second, respectively, can be expected to cause mortality among fish and sea turtle species (see MND pp. 3-45 to 3-46). Mitigation measures **MM BIO-2**, **-3**, and **-4**, incorporated into this permit under **Special Condition 2**, require measures, such as soft-start and ramp-up procedures, sound source characterization and determination of preclusion radii for marine mammals, and monitoring for sea turtles species, that would protect sea turtles against significant injury or harassment from noise related to dynamic pipe ramming. These measures would not provide the same level of protection for fishes, which cannot feasibly be monitored for within an exclusion zone, but due to the short duration of the proposed pipe ramming (approximately four hours) and absence of protected species in the project area, the Commission finds that impacts to fish would not be significant.

As conditioned, the Commission finds that significant adverse impacts from underwater sound would be avoided.

Water Quality

The proposed project would occur in and adjacent to the open coastal waters of northern San Diego County, and could adversely affect water quality and marine biota as a result of: (1) increased turbidity generated during pipeline and mooring system removal; (2) the release of fuel, hazardous materials, sewage or bilge/ballast water from project vessels, vehicles and equipment; and (3) increased erosion, sedimentation, and other potential water quality impacts related to terrestrial construction activities.

Turbidity and Redistribution of Seafloor Sediments

The size of the turbidity plume caused by project activities (i.e., lifting and/or excavation of fuel oil pipeline, mooring system removal, etc.) would depend on the area and depth of seafloor sediments being disturbed, the type of disturbance, the grain size of the sediments, and local water conditions (which would affect suspended sediment settlement rates and distance of dispersal). Increases in turbidity can degrade water quality by reducing light penetration, discoloring the ocean surface, or interfering with filter-feeding benthic organisms sensitive to increased turbidity, and, as discussed above, result in the burial of sensitive hard-substrate habitats. Removal of the oil pipeline will result in localized increases in turbidity as the pipeline

segments lifted from the seafloor and/or excavated. However, sediment disturbance would be confined to the area immediately surrounding the pipeline, and limited by the fact that the much of the pipeline lies exposed on the seafloor or is covered with only a thin layer of sediment. Sediments in the project area consist largely of sand, which would settle out of the water column relatively quickly and in the general area of the pipeline removal activities. Similarly, sediment disturbance associated with vessel anchoring and the removal of anchors and chains associated with the MOT buoys and mooring systems would result in only temporary and localized increases in turbidity. The MND states that levels of turbidity that could be expected to result from the project would be similar to turbidity generated by storm waves. Moreover, these localized turbidity increases would occur only during active pipeline removal and anchor/chain removal activities, which are expected to be completed within a four-month period. Based on these factors, turbidity impacts on water quality would be insignificant.

Spills, Leaks & Releases from Project Activities, Vessels and Equipment
The proposed project requires the use of several different marine vessels and equipment, as well as the use of vehicles and heavy-equipment in onshore areas, to support the removal of the offshore fuel oil pipeline and other decommissioning activities. It is possible that marine vessels could, accidentally or intentionally, discharge fuel or other hazardous fluids, sewage water, bilge water, debris, or ballast water into the marine environment. Similarly, leaks or spills of fuel or other hazardous materials from onshore vehicles and mechanized equipment could be washed into the ocean. The fuel oil pipeline was pigged and flushed in 2010 during preliminary decommissioning activities, and is currently filled with approximately 1465 barrels of water mixed with a preservative, but nonetheless may contain traces of residual hydrocarbons. Leakage or discharge of this fluid during project activities could also introduce contaminants into the marine environment. Depending on the size and contents of a leak, spill or discharge from one of these sources, impacts to marine organisms could be significant.

Although the likelihood of a spill occurring is low, Cabrillo has prepared an Oil Spill Response Plan (OSPR) including mitigation measures to further reduce the risk of accidental spills and releases from project vessels, vehicles and equipment. These measures include preventative steps such as regular maintenance and monitoring of project vehicles and equipment, use of a designated, off-site refueling area for onshore vehicles and equipment, provision of drip pans, clean-up materials for minor spills, and secondary containment for fuel containers onboard project vessels. The OSPR also describes the onsite spill response team, equipment and procedures that Cabrillo will maintain for minor spills, Cabrillo's existing contract with a certified secondary responder for larger spills, and procedures for agency notification following an incident. In order to minimize the potential for accidental spills or leaks, the Commission is including **Special Condition 8**, which requires Cabrillo to submit, for the review and approval of the Executive Director, a revised OSPR with additional information. The revised OSPR shall identify the worst-case spill scenarios for both onshore and offshore operations, and demonstrate that adequate spill response equipment is available for each. In addition, the Plan shall identify the location of oil spill response equipment, and include a plan for conducting training and response drills. Additionally, consistent with its approvals of previous major offshore projects, the Commission is including **Special Condition 9**, which requires implementation of a zero discharge policy for all project vessels.

MND mitigation measure **MM BIO-8** (see **Appendix B**) requires that all fluids (water,

preservative, any trace hydrocarbons) currently held in the fuel oil pipeline be flushed prior to the beginning of decommissioning activities. This measure requires that the fluids be recovered at the onshore terminus of the pipeline, at the beach valve pit on the EPS grounds, and transported off-site for treatment and disposal. With the implementation of this measure, incorporated into this permit as part of **Special Condition 2**, the potential for spills from the pipeline itself would be minimized.

Erosion & Release of Contaminated Soil from Onshore Activities
Excavation associated with the removal of the fuel oil pipeline on the beach, and with the decommissioning of the pipeline conduit, conduit end structures, and beach valve pit in the onshore project segment, have the potential to result in water quality impacts due to storm water discharges, accelerated soil erosion, and sedimentation. The potential for water quality impacts from these processes is exacerbated by the known or suspected presence of contaminated soils along the route of the pipeline.

Cabrillo is in the process of seeking a 401 Certification from the Regional Water Quality Control Board that will address potential water quality impacts from decommissioning activities. **Special Condition 1** requires Cabrillo to submit evidence of approval of the 401 Certification to the Executive Director. To further ensure that impacts associated with stormwater runoff and erosion are minimized, **Special Condition 10** requires MC Global to submit a Stormwater Management Plan to the Executive Director for review and approval that identifies Best Management Practices to control erosion and stormwater runoff from the project site.

The fuel oil pipeline was in active service for approximately 30 years prior to the conversion of the EPS to a natural gas facility in the 1980s, during which time the leakage of oil may have contaminated surrounding soils. Similarly, the beach valve pit and vertical concrete vault on the beach both have features (e.g., drains) that could have released leaked oil to surrounding soils. Previous sampling of loose soil collected from the beach valve pit and the pipeline conduit beneath Carlsbad Boulevard detected elevated levels of total petroleum hydrocarbons (TPH) (see MND, pp. 3-82), suggesting the other locations along the pipeline may also be contaminated. In order to detect and safely dispose of any known and suspected hydrocarbon-contaminated soils, the MND contains the following mitigation measures

> *MM HAZ-3a: Extended Phase I Environmental Site Assessment (ESA). An extended Phase I ESA review, as well as the assessment of soils around and in the beach valve pit, shall be conducted to address potential soil contamination issues at the Project site prior to the commencement of decommissioning activities. If contamination is identified, the appropriate measures to address the hazard shall be added to the Contractor Work Plan. This may include excavation and removal of contaminated soil to a legal disposal site, or onsite treatment of contaminated soil. A copy of the Phase 1 ESA shall be 1 provided to California State Lands Commission staff within 2 weeks of completion.*
>
> *MM HAZ-3b: Personnel Trained to Work with Hazardous Substances. All work requiring removal of facilities shall be conducted by personnel trained to work with hazardous substances and any suspicious soils (stained or with an unusual odor) or groundwater (showing a sheen or with an unusual odor), shall be tested and treated in accordance with all applicable laws.*

> *MM HAZ-4: Disposal of Total Petroleum Hydrocarbon (TPH)-Containing Soil. Soil in the bottom of the beach valve pit known to have levels of TPH shall be disposed of as a petroleum-containing special waste.*

These measures are being incorporated into this permit as a part of **Special Condition 2**. Implementation of these mitigation measures will minimize the potential for water quality impacts from the mobilization of contaminated soil during the project. However, the site assessment required under **MM-HAZ-3a** may detect additional soil contamination requiring remediation activities, including the excavation and removal of soils from the beach or upland areas of the project site. At present, the need for and scope of these remediation measures remains unknown, as do any potential adverse environmental effects that could result. In order to avoid and mitigate for potential impacts to coastal resources that could result from a soil remediation project, the Commission is including **Special Condition 11**, which requires Cabrillo to apply for a Coastal Development Permit Amendment for any future soil remediation work stemming from compliance with MND measure **MM HAZ-3a**.

In summary, with the inclusion of the Special Conditions described above, the proposed project will minimize the potential for adverse impacts associated with increased turbidity, spills and discharges from project vessels, vehicles and equipment, and runoff and erosion from onshore activities.

Conclusion

For the reasons discussed above, the Commission finds that the proposed project, as conditioned by **Special Conditions 1 - 11**, will be carried out in a manner that maintains marine resources and sustains the biological productivity and quality of coastal waters and protects against the spillage of hazardous substances into the marine environment and is therefore consistent with Coastal Act Sections 30230, 30231 and 30232.

E. COMMERCIAL AND RECREATIONAL FISHING

Coastal Act Section 30234.5 states:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

Commercial and recreational fishing are important components of the regional economy in San Diego County. The proposed project is located in an area used for commercial fishing, falling within CDFW Fish Block 822 and encompassing areas designated as Essential Fish Habitat (EFH) for the Pacific Coast Groundfish, Coastal Pelagic Species, and certain West Coast Highly Migratory Species Fishery Management Plans under the federal Magnuson-Stevens Act. The highest value fisheries in the project area are for lobster, crab, market squid and sardines, each of which could be caught at the water depths and in the seafloor habitats in or adjacent to the project area. Among these fisheries, the catch of several species of lobster is the most economically important. Lobster fishermen set traps and harvest lobster species in hard-substrate benthic habitats along the coast of northern San Diego County, including in the project vicinity. In this area, lobster season extends from October through March, with the greater part of

the catch historically occurring during the fall months. Recreational fishing for pelagic fish such as kelp bass, Pacific mackerel, barracuda and sand bass also occurs in the project vicinity.

The proposed project has the potential to adversely affect commercial and recreational fishing by (a) directly harming fished species during project operations; (b) damaging or altering the habitats (e.g., hard- or soft-bottom seafloor, kelp forest) that sustain fished species; (c) precluding the use of an established fishing area for the duration of the project; and (d) damaging fishing gear (such as buoys or traps) during vessel transit.

Potential adverse impacts to fish species and their habitats are discussed in detail in the marine resources section, and will be avoided and/or minimized by **Special Conditions 1 - 4** and **8 - 11**, which would prevent damage to hard substrate habitats, protect water quality, and minimize impacts from underwater noise.

Decommissioning of the offshore and surf zone segments of the MOT is anticipated to occur during successive fall seasons, between September and early January. During these periods, an area of varying size at the working end of the fuel oil pipeline within the anchor spreads (see **Exhibit 5**) would not be available for commercial and recreational fishing. However, this area of temporary closure would be very small relative to the total area available for fishing along the San Diego County coastline. The proposed work periods would partially overlap with the commercial lobster season (October – March), but the sandy bottom areas in which the project would take place (see **Exhibit 4**) are not areas that would be targeted by lobster fishermen.

MND mitigation measure **MM TRA-5** requires Cabrillo to describe all offshore operations in a Local Notice to Mariners to be submitted to the U.S. Coast Guard at least 15 days prior to decommissioning activities. The Commission is incorporating this requirement into this CDP as a part of **Special Condition 2**. This condition will ensure that advance notice of project-related restrictions and closures will be available to local commercial and recreational fishermen with sufficient lead-time to allow those affected to plan their fishing activities for alternate times and locations. Additionally, **Special Condition 7** requires Cabrillo to seek a CDP amendment for any major modification of or deviation from the anticipated project schedule, and limits the closure of open water areas during project activities to the minimum necessary to maintain the safety of project personnel and the public. Combined with the project timing limitation, this condition minimizes the extent and duration of any interference with commercial and recreational fisheries in the project area.

In order to minimize the potential for damage to fishing gear during vessel transit, the Commission is including **Special Condition 5**, which requires that project personnel receive training to recognize and monitor for fishing gear, and that marine observers and vessel operators monitor for and avoid fishing gear vessel transit and marine operations.

With these measures and special conditions in place, the Commission finds that commercial and recreational fishing activities will be protected in accordance with Coastal Act Section 30234.5.

F. PUBLIC ACCESS, RECREATION AND VISUAL RESOURCES

Coastal Act Section 30210 states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Coastal Act Section 30220 states:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Coastal Act Section 30221 states in part:

> *Oceanfront land suitable for recreational use shall be protected for recreational use and development …*

Coastal Act Section 30251 states:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.*

Components of the marine oil terminal, including the fuel oil pipeline, riprap groin, mooring anchors, and other structures, occur on or beneath the South Beach area of Carlsbad State Beach and the seafloor immediately offshore. The fuel oil pipeline also crosses beneath Carlsbad Boulevard, a major coastal access road and City-designated scenic route, through a concrete conduit. Carlsbad State Beach is a popular destination for surfing, swimming, skin diving, fishing, picnicking, and other recreational activities. Recreational boating and fishing occur in the offshore portions of the project site. Beach and ocean resource use is greatest within the Project vicinity in summer and on weekends; however, the beach area, associated undesignated bluff trails, and a designated bike lane, which is located on the ocean side of Carlsbad Boulevard, are well-used by walkers, joggers, and bicyclists year-round.

Temporary Onshore Impacts

Onshore project operations associated with the removal of the fuel oil pipeline, decommissioning of the conduit end structures, and temporary storage of riprap would temporarily preclude public use of an approximately 48,000 square foot area of the beach (see **Exhibit 3**, "beach work area"), and result in the removal and temporary closure of a section of the sidewalk on the west side of Carlsbad Boulevard, where it crosses over the underpass end structure. The proposed work would also temporarily impair the scenic qualities along this section of the shoreline due to the presence of heavy equipment and stockpiled materials. Cabrillo estimates that decommissioning work involving the underpass end structure could take three months during the fall, during which the western sidewalk and a portion of the beach would be closed to public access. The beach segment of the project, encompassing the pipeline removal, removal and replacement of the groin, and site restoration, could result in restricted access to a large part of the South Beach area

of Carlsbad State Beach for up to three months during the fall season. Taken together, these closures would temporarily block or limit lateral access along the beach and shoreline in this area for the duration of the proposed work.

The preliminary project schedule and work plan avoids beach and onshore work during the summer season (Memorial Day through Labor Day) and on weekends, when public use of the beach is at its highest. In order to memorialize this commitment, and ensure that the temporary impacts to public access and recreational use of the shoreline are minimized, the Commission is adopting **Special Condition 7**, which requires that all project activities be conducted between September 5 and May 31, and that work on weekends and holidays be avoided, with the exception of instances when the work requires an extreme low tide that only occurs on a weekend or holiday. In order to maintain lateral shoreline access throughout the project period and minimize the area of public beach subject to closure, **Special Condition 11** requires that Cabrillo submit for the Executive Director's review and approval a Shoreline Access Plan prior to the beginning of onshore decommissioning activities. At a minimum, the Plan shall: (1) provide an alternate lateral access route (including appropriate signage and demarcation) along Carlsbad Boulevard, consistent with public safety, during periods when the western sidewalk must be closed; (2) identify the minimum necessary beach work area to be closed during the beach segment of the project, maintaining a lateral access route along the beach to the maximum extent feasible consistent with public safety. These measures will ensure that project impacts to public access and visual resources from onshore construction activities are minimized.

Temporary Offshore Impacts

Offshore project operations, chiefly associated with the removal of the fuel oil pipeline, would temporarily restrict access to certain offshore areas to recreational boaters, fishermen, and divers for up to four months during the fall season to early winter season. However, as discussed previously in Section IV.E, the area of temporary closure would be very small relative to the total area available for recreational boating and fishing along the San Diego County coastline, with ample area still open for use both up and downcoast of the project site. Project vessels, in particular the large derrick barge to be used during pipeline removal, would be visible from the beach and shoreline during the offshore and surf zone segments of the project. As discussed above, **Special Condition 7** would reduce impacts to recreational boating by restricting project activities to the period between September 5 and May 31, avoiding the summer season, and by limiting project activities on weekends and holidays. In addition, **Special Condition 2** includes a measure requiring Cabrillo to provide descriptions of its offshore operations in a Local Notice to Mariners submitted to the U.S. Coast Guard at least 15 days prior to the beginning of offshore work, ensuring that advance notice of project-related restrictions and closures will be available to recreational boaters. These measures will ensure that project impacts on offshore recreation and scenic resources are minimized.

Reconstruction of the Riprap Groin

More permanent adverse impacts on public access, recreation, and visual resources would result from the proposed reconstruction of the riprap groin following the removal of the fuel oil pipeline. Although the existing groin appears to provide some limited public access benefits (e.g., rocks for sitting and climbing, and, on occasion, a flat surface near the back of the beach for locating a lifeguard tower) (K. Lancaster, City of Carlsbad, pers. comm.), its removal would

free approximately 13,000 square feet (0.30 acre) of sandy beach that would become available for the public access and recreation activities more traditionally enjoyed by the beach-going public. The proposed replacement of the groin would forego this benefit and preclude public use of the beach and intertidal zone with in the groin footprint.

Cabrillo has submitted a modeling analysis (Jenkins 2013) suggesting that the removal of the groin would, over the long term, result in the narrowing of the surrounding beach. If such narrowing were to occur, the value of the beach for public access and recreation would be diminished, potentially offsetting or even outstripping the benefit of the new beach area made available by removing the groin. However, as discussed in greater detail in Section IV.G, below, Cabrillo has presented no evidence that the beach is in imminent danger of erosion, with or without the groin, and the Jenkins (2013) study does not predict significant beach narrowing for 10 to 20 years. Moreover, if a long-term erosion trend were to emerge, and the public access value of the beach were threatened, a number of alternative approaches to addressing the problem would need to be evaluated to determine which would be the most effective while generating the least environmental impact.

In addition to reducing the public access and recreational value of the beach, the reconstruction of the groin would be inconsistent with Section 30251 of the Coastal Act, which requires that the scenic and visual qualities of coastal areas be protected, and that development minimize the alteration of natural landforms. The groin, if rebuilt, would reintroduce an obtrusive, unnatural element into the beach landscape, and moreover, would represent a missed opportunity to restore and enhance visual quality in a beach area that has been significantly visually degraded by prior shoreline development.

Based on these considerations, in order to protect, restore and maximize public access, recreational opportunities, and visual resources on the South Beach, the Commission is adopting **Special Condition 3**, which requires Cabrillo to properly dispose of the riprap groin that it removes as part of the proposed project. This condition requires the removal of the rock to a proper storage or disposal location off of the beach and outside coastal waters.

With the inclusion of this special condition, the Commission finds that the proposed project would be consistent with the public access, recreation and visual resources policies of the Coastal Act.

G. SHORELINE PROCESSES & SHORELINE PROTECTIVE DEVICES

Coastal Act Section 30235 states, in relevant part:

> *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent use or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply …*

Coastal Act Section 30253 states, in relevant part:

> *New development shall do all of the following:*
> …
>
> *(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area …*

Coastal Act Sections 30235 and 30253 acknowledge that seawalls, revetments, jetties, groins and other such structural or "hard" methods designed to forestall erosion may also alter natural landforms and natural shoreline processes, resulting in a variety of negative impacts on coastal resources, including adverse effects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site. Thus, such devices can only be approved when they are necessary to protect existing structures or public beaches in danger from erosion, and only when designed to eliminate or mitigate adverse impacts on local sand supply.

The existing riprap groin was placed on the beach in 1953 at the time of the installation of the Marine Oil Terminal for the purpose of protecting the fuel oil pipeline where it crosses the beach and surf zone. Under the proposed project, the groin would be dismantled in order to allow for the permanent removal of the pipeline, but it is proposed to be reconstructed in its original location and configuration for the purpose of helping to retain sand on the beach at the project site. As discussed in Sections IV.C, IV.D, and IV.F, above, this portion of the project (i.e., the replacement of the groin) is inconsistent with several Chapter 3 policies of the Coastal Act and would cause impermissible adverse impacts to marine resources, public access and recreation, and natural landforms and visual resources. Therefore, in order to be permissible despite these inconsistencies, the proposed groin reconstruction must satisfy the following tests contained in Section 30235: (1) there is an existing structure or public beach; (2) the existing structure or public beach is in danger from erosion; (3) the shoreline altering construction is required to protect the existing threatened structure or public beach; and (4) the required protection is designed to eliminate or mitigate the adverse impacts on shoreline sand supply. The first two tests relate to whether there is a need for protective action. The third test seeks to determine whether the proposed shoreline altering construction itself is necessary, or whether adequate protection could be provided by a feasible alternative. The fourth test applies to mitigation for any sand supply impacts of armoring specifically identified in Section 30235. Other impacts resulting from the proposed armoring are addressed in previous sections of the report.

Existing Structures or Public Beach to Be Protected

Following the decommissioning of the MOT, the riprap groin would no longer be needed for its original purpose of protecting the fuel oil pipeline. However, the riprap was originally placed on a beach that is now the South Beach segment of Carlsbad State Beach. As described in its CDP application, Cabrillo's intended purpose in reconstructing the groin is to benefit this existing public beach. Thus, the proposed groin meets the first test of Section 30235.

Danger from Erosion

The Coastal Act allows shoreline armoring to protect public beaches in danger from erosion, but it does not define the term "in danger". The width and profile of a beach varies over time in response to seasonal changes in wave and current conditions, storm events, and nearshore sediment supply, and to interannual and decadal-scale processes (e.g., El Nino/Southern

Oscillation, Pacific Decadal Oscillation) that modulate these primary factors. Even under natural conditions, variations in beach width can be extreme, such that in the short-term, such as following a major winter storm that has washed a large amount of sand offshore, a beach may appear to be "in danger," but in fact is likely to recover its former width over time as sand is returned to the beach and new sand is provided by sediment transport within the littoral cell. In the project vicinity, variations in beach width and volume are also influenced by major human interference with natural shoreline processes and sediment supply, including the use of Agua Hedionda Lagoon for cooling water at the EPS, the construction of large jetties to maintain intake and discharge channels in the outer basin of the lagoon, periodic dredging of the lagoon and placement of the spoils on local beaches, and major regional beach nourishment projects. In assessing the "danger" from erosion in this complex and much-altered system, it is necessary to differentiate between short-term, seasonal or episodic narrowing of a beach, and longer-term trends that may result in a chronically narrow beach or an unacceptably frequent occurrence of low-sand conditions. In reviewing coastal armoring proposals, the Commission has typically considered a structure or public beach to be "at risk" if it could be damaged by erosion or coastal retreat within three to five years. Given the high degree of variability inherent to beaches, the risk determination for a public beach also takes into account the potential for recovery after an episodic erosion event, such as a large storm.

In support of its CDP application, Cabrillo submitted a technical report containing model projections of future shoreline evolution in the project area with, and without, the South Beach groin (Jenkins 2013), assuming that dredging of Agua Hedionda and sand placement on Carlsbad State Beach continue at historical rates. As stated in the report, forward modeling suggests that the removal of the groin would have no immediate effect on the surrounding beach, but that over time the beach would begin to narrow as a result of cumulative losses of sand – a small loss of six feet after five years, and a more significant loss of 17 feet over 20 years. The study also predicts that the sand retention time of the beach following sand placement events would decline, reducing the effectiveness of beach nourishment.

The groin is located about 400 feet downcoast of the Agua Hedionda warm water outflow jetties. The groin seems to help retain sand on the section of beach immediately south of the southern jetty, as apparent in many historical photographs in which this stretch of beach is noticeably wider than the portion of South Beach immediately south and generally down-drift of the groin (see **Exhibit 6**). It is reasonable to expect that sand will remain in this artificially created beach cell for a longer time period that it would remain on a beach segment that is more open to longshore transport. Since the groin does appear to retain sand within this small cell for longer than it would remain without the groin, it is also logical to expect that the cell would narrow slightly and that sand retention time would decrease once the groin was removed. However, the sand would remain within the littoral system and once it has left the small cell established by the groin, it would continue to nourish the downcoast section of beach. Finally, even with the possible changes in beach width and sand retention times, the results of the Jenkins (2013) study do not support a determination that South Beach is in imminent danger of erosion, since in the simulations significant beach retreat is only reported to emerge after 10 to 20 years.

A number of aspects of the Jenkins (2013) report limit its utility for addressing the question of whether the South Beach is currently in danger of erosion – with or without the groin. Although

the report provides a great deal of information on past lagoon dredging and sand placement on nearby beaches, and an exhaustive treatment of the modeling methods and of hydrodynamics within the lagoon, it provides no site-specific information about the beach in question – for instance, short- and long-term trends in beach width, beach profile, and sand volume -- and no assessment of the current status of the beach as a recreational resource.

Shoreline monitoring data available from 1987 to 2015 for SANDAG Regional Shoreline Monitoring Program sites provide evidence for the relative stability of beach widths in the Agua Hedionda area over time. Although no monitoring data are available for the project site itself, the nearest monitoring location (CB-0820), located just to the north on Middle Beach, has shown a long-term trend of modest beach accretion (widening) since the 1980s (Elwany et al. 1999; Coastal Frontiers 2016). More broadly, both the SANDAG program and the USGS have noted a general long-term trend toward beach accretion in the Carlsbad portion of the Oceanside littoral cell, although this has not been true of all sites and locales (Hapke et al. 2006; Coastal Frontiers 2016). Another factor that would promote the maintenance of beach widths at the project site is the periodic deposition of sand dredged from Agua Hedionda that has been carried out by Cabrillo since the late 1980s, as authorized by multiple CDPs (e.g., CDP Nos. F5536, 6-93-193, 6-97-45, 6-00-111, 6-01-80, 6-04-054, 6-06-061, 6-08-047, 6-10-046, 6-14-1128). Since 1988, approximately 1 million cubic yards of sand have been placed on South Beach in 11 individual nourishment events, most recently in 2015.

In summary, Cabrillo has provided no substantial evidence that the beach at the project site is in danger from erosion, and although site-specific information is limited, that which exists tends to support the conclusion that the beach widths have been maintained over the past several decades, and that any future narrowing following the removal of the groin would take many years to emerge. Based on these considerations, the Commission finds that the proposed groin does not fulfill the second test of Section 30235, and is thus not approvable under this section of the Coastal Act.

Necessity of Shoreline Altering Construction (Alternatives)

Even if new evidence were to become available demonstrating that the beach at the project site was in danger of erosion, the third and fourth tests of Section 30235 requires that the proposed groin, in its proposed dimensions and location, be necessary to protect the beach and be the least environmental damaging alternative. In other words, the groin must be needed to address erosion and there should be no other, less-environmentally damaging feasible alternative that could achieve the same goal of protecting the beach from erosion. Cabrillo has provided no evidence or analysis that the proposed groin is the only or best alternative for protecting the beach, if it were found to be in danger from erosion. In fact, there are several potential alternatives that would need to be thoroughly evaluated before such a conclusion could be reached. One potential alternative that would avoid the use of shoreline armoring is new or increased beach nourishment, either from the on-going Agua Hedionda dredging program or another source. While sand placement on the beach may prove to be less effective in the absence of the groin (Jenkins 2013), it is likely that increasing the amount and/or frequency of sand placement could, on average, maintain the width and recreational values of the beach at the project site. Even if no additional sand from Agua Hedionda dredging were available, it may be possible to increase the proportion of the available sand assigned to South Beach.

Structural alternatives to the proposed groin could include a submerged reef, a spur groin off the southern jetty, or one or more groins that are at different locations or based on designs that differ from the current groin. A submerged reef could be constructed immediately offshore the project site, designed so as to limit the offshore transport of sand and increase the sand residence time on the beach.[2] If erosion of South Beach is tied to wave energy being reflected along the face of the southern jetty, a spur groin attached to the jetty might be used to interrupt the wave energy and maintain greater retention of sand at South Beach. It may also be determined that one or more groins are the most appropriate way to address the erosion of the public beach areas south of the warm water outflow jetties and a detailed study would be needed to determine the optimal design, placement and spacing between structures.

If additional sand nourishment or by-passing is not sufficient to maintain a recreational beach in this location, at some point in the future, structural alternatives might be appropriate for this beach area. If that is the case, options for beach protection would require studies of the site conditions and development of designs that best address the identified erosion concerns. There have been no such studies for South Beach, nor have there been engineered plans developed to ascertain the best design. The Jenkins report (2013) would provide some regional context for such studies; however, far greater focus on the region south of the jetties would be needed, with localized transport under different protection schemes and taking into account various sea level rise scenarios. As proposed, the groin would be reconstructed to match the size and in the same location as the existing structure, which was installed for the purpose of protecting the oil pipeline and without regard for optimizing sand retention or beach widths.

These conceptual alternatives to the proposed groin would need to be considered thoroughly, both comparing sand retention benefits as well as adverse environmental effects, before the Commission could conclude that the shoreline altering construction proposed here would be necessary if the beach were found to be in danger from erosion. Absent such alternatives analysis, the Commission finds the proposed groin does not meet the third test of Section 30235.

Cabrillo also did not provide an analysis of the effects of the groin on downcoast sand supply. Absent this type of analysis, the Commission is unable to find the project consistent with the fourth test of Section 30235.

Conclusion

Based on the above analysis, the Commission finds that the proposed groin is not necessary to protect existing structures or public beaches in danger from erosion, and is not required to be approved under Section 30235 of the Coastal Act.

H. California Environmental Quality Act

In addition, Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the

[2] For example, the City of Solana Beach has been studying the potential benefits of a submerged reef offshore of Fletcher Cove: http://www.ci.solana-beach.ca.us/vertical/sites/%7B840804C2-F869-4904-9AE3-720581350CE7%7D/uploads/Costal_FletcherCove_Review-ASR.pdf

application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act ("CEQA"). Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment.

On December 18, 2015, the California State Lands Commission, acting as the CEQA lead agency, certified a Mitigated Negative Declaration (MND) concluding that the project, with the implementation of several required mitigation measures, would not have a significant effect on the environment.

The project as conditioned herein incorporates measures necessary to avoid any significant environmental effects under the Coastal Act, and there are no less environmentally damaging feasible alternatives or mitigation measures. Therefore, the proposed project is consistent with CEQA.

Appendix A: Substantive File Documents

Coastal Development Permits and Application Materials:

Adopted Findings for Coastal Development Permit No. 6-14-1128
Application and Application File for Coastal Development Permit No. 9-16-0560

CEQA Document for Project:

California State Lands Commission (2015). *Mitigated Negative Declaration for the Cabrillo Power I LLC Encina Marine Oil Terminal Decommissioning Project* (State Clearinghouse No. 2015101064), December 2015.

Other Reports and Resources:

California Department of Fish and Wildlife (CDFW) (2016). *California Grunion Information – California Grunion Facts and Expected Runs*. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=36316&inline=true. Accessed October 20, 2016.

City of Carlsbad (2005). *Final Environmental Impact Report for the Precise Development Plan and Desalination Plant Project: Biological Resources* (State Clearinghouse No. 2004041081).

Coastal Frontiers Corporation (Coastal Frontiers) (2016). *SANDAG 2015 Regional Beach Monitoring Program Annual Report*, prepared for San Diego Association of Governments, April 2016.

Elwany, M.H.S., A.-L. Lindquist, R.E. Flick, W.C. O'Reilly, J. Reitzel, W.A. Boyd (1999). *Study of Sediment Transport Conditions in the Vicinity of Agua Hedionda Lagoon*, prepared by Coastal Environments for the California Coastal Commission, San Diego Gas & Electric and the City of Carlsbad, April 15, 1999.

Fugro Pelagos, Inc. (2013). *Cabrillo Power I LLC Encina Power Station Bathymetry and Geophysical Survey, Bathymetry and Surficial Features,* April 2013.

Greeneridge Sciences, Inc. (2015) *Underwater Noise Impacts of Encina Power Stations Marine Oil Terminal Decommissioning, Carlsbad, California 2015* (Greeneridge Sciences Report 518-1).

Hapke, C.J., D. Reid, B.M. Richmond, P. Ruggiero and J. List (2006). *National Assessment of Shoreline Change Part 3: Historical Shoreline Change and Associated Coastal Land Loss Along Sandy Shorelines of the California Coast*. U.S. Geological Survey Open-File Report 2006-1219.

Jenkins, S.A. (2013). *Technical Memorandum: Shoreline Evolution Analysis of Impacts Related to Removal of the South Beach Groin at Encina Power Station, Carlsbad, California*. Prepared for NRG Cabrillo Power Operations Inc., February 2013.

Le Page, S. and R. Ware (2001). *Marine Biological Investigations for the Jetty Restoration Project at Agua Hedionda Lagoon*. Prepared for Cabrillo Power I, LLC.

MBC Applied Environmental Sciences (2012). *Status of the Kelp Beds 2011*. Prepared for San Diego and Orange County Region Nine Kelp Survey Consortium.

Merkel & Associates, Inc. (2013). *Encina Power Station Marine Biological Resources Survey to Support the Project to Abandon or Remove the Marine Oil Terminal Facilities*. Prepared for Cabrillo Power I, LLC, February 2013.

National Marine Fisheries Service (NMFS) (2016). *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts.* NOAA Technical Memorandum NMFS-OPR-55.

Appendix B:

Mitigation Measures from the California State Lands Commission Mitigated Negative Declaration (MND) for the Encina Marine Oil Terminal Decommissioning Project (December 2015) that are Incorporated into CDP# 9-16-0560 in Special Condition 2

MM BIO-2: Dynamic Pipe Ramming (DPR) Soft-Start and Ramp-Up Procedure. The contractor conducting DPR operations shall begin the procedure at a reduced level and repeat the sound producing activity, gradually increasing the intensity of the operation prior to initiating normal construction levels. The duration of the ramp-up during Project operations shall be determined by a qualified marine biologist and based upon the findings of a sound source characterization study for DPR. This procedure will be used any time DPR operations are initiated.

MM BIO-3: Dynamic Pipe Ramming (DPR) Sound Source Characterization. Prior to DPR operations, a marine acoustics specialist shall be retained to conduct underwater noise measurements during a trial operation of the equipment at the Project site. In coordination with the National Oceanic and Atmospheric Administration (NOAA), the results of the underwater noise measurements shall be used to determine preclusion radii for marine wildlife (mammals and reptiles) safety during DPR operations based on NOAA's acoustic thresholds in place at the time of Project operations for permanent and temporary threshold shifts. A copy of the sound source characterization shall be provided to California State Lands Commission staff and NOAA within 2 weeks of completion.\

MM BIO-4: Marine Wildlife Monitoring During Sound Source Characterization and Dynamic Pipe Ramming (DPR). Qualified marine wildlife monitors (MWMs) shall be onsite and present throughout sound source characterization and DPR operations. Once the marine wildlife preclusion radii (i.e., safety zone) have been determined, MWMs shall be located such that he/she has a clear view of the marine waters within the safety zone and beyond. The MWMs shall indicate that a designated safety zone is clear of marine wildlife (mammals and reptiles) prior to the start of DPR operations and shall have the authority to stop DPR operations if marine wildlife are observed at any time within the safety zone. The initial safety zone to be implemented during sound source characterization will be 1,000 feet. The initial safety zone will be revised to reflect new thresholds for permanent and temporary threshold shifts (PTS and TTS) should they be finalized by the National Oceanic and Atmospheric Administration prior to Project operations. The safety zone to be implemented during DPR will be modified as necessary based on the sound source characterization results and will reflect the PTS and TTS thresholds in place at the time of Project operations.

MM BIO-5: Pre- and Post-Decommissioning Seafloor Debris Survey and Debris Removal. The offshore work shall begin and end with seafloor debris surveys. The Applicant's contractor shall perform a side-scan sonar (with 400% coverage) and bathymetric survey, or multi-beam sonar survey, of the underwater worksite prior to the arrival of the contractor's marine equipment spread at the worksite. The survey shall encompass the entire underwater worksite bordered by the contractor's planned derrick barge anchorages plus an offset of approximately 500 feet. Derrick barge anchorages shall be positioned to

avoid rock outcroppings and kelp beds. A map shall be produced by the surveyor and shall serve as the baseline for the seafloor conditions at the underwater worksite prior to the start of work.

All surveys employing low-energy geophysical equipment, including remotely operated vehicle surveys, must be conducted by an entity holding a valid geophysical survey permit under the California State Lands Commission's (CSLC) Low-Energy Offshore Geophysical Permit Program (see www.slc.ca.gov/Programs/OGPP.html). Therefore, the Applicant shall obtain a valid Permit prior to initiating the surveys.

After decommissioning work is complete, the contractor shall be required to perform a second side-scan sonar (with 400% coverage) and bathymetric survey in the same underwater work area. The surveyors shall again produce a map of the survey area and use it to identify any items of seafloor debris introduced into the underwater worksite by decommissioning operations. The contractor shall remove all debris, if any, related to the offshore tanker berth facilities and operations and the decommissioning work.

The Applicant shall provide: (1) the pre-decommissioning survey map to CSLC staff and permitting agencies for approval at least 60 days prior to Project implementation; and (2) the post-decommissioning map to CSLC staff within 30 days of survey completion for agency sign-off.

MM BIO-6: Final Marine Safety and Anchoring Plan (MSAP). A final MSAP shall be developed following the analysis of seafloor habitat and bathymetric data to be collected during the pre-decommissioning survey. Additionally, a diver biologist survey shall be conducted to ensure that all pre-determined vessel anchor locations are positioned in sedimentary habitats and avoid rocky substrate and kelp by at least 50 feet. The final plan shall be submitted to California State Lands Commission staff for review at least 2 weeks prior to the commencement of Project activities.

MM BIO-8: Flush Fuel Oil Submarine Pipeline. Prior to opening the fuel oil submarine pipeline to the ocean during the decommissioning process, this pipeline shall be flushed from its offshore termination to its onshore termination at the beach valve pit with seawater to displace the potable water and preservative. The potable water and preservative mixture shall be recovered at the beach valve pit and transported off-site for treatment and disposal.

MM HAZ-3a: Extended Phase I Environmental Site Assessment (ESA). An extended Phase I ESA review, as well as the assessment of soils around and in the beach valve pit, shall be conducted to address potential soil contamination issues at the Project site prior to the commencement of decommissioning activities. If contamination is identified, the appropriate measures to address the hazard shall be added to the Contractor Work Plan. This may include excavation and removal of contaminated soil to a legal disposal site, or onsite treatment of contaminated soil. A copy of the Phase 1 ESA shall be 1 provided to California State Lands Commission staff within 2 weeks of completion.

MM HAZ-3b: Personnel Trained to Work with Hazardous Substances. All work requiring removal of facilities shall be conducted by personnel trained to work with hazardous substances and any suspicious soils (stained or with an unusual odor) or groundwater (showing a sheen or with an unusual odor), shall be tested and treated in accordance with all applicable laws.

MM HAZ-4: Disposal of Total Petroleum Hydrocarbon (TPH)-Containing Soil. Soil in the bottom of the beach valve pit known to have levels of TPH shallbe disposed of as a petroleum-containing special waste.

MM TRA-5: Local Notice to Mariners. All offshore operations shall be described in a Local Notice to Mariners to be submitted to the U.S. Coast Guard at least 15 days prior to decommissioning activities.

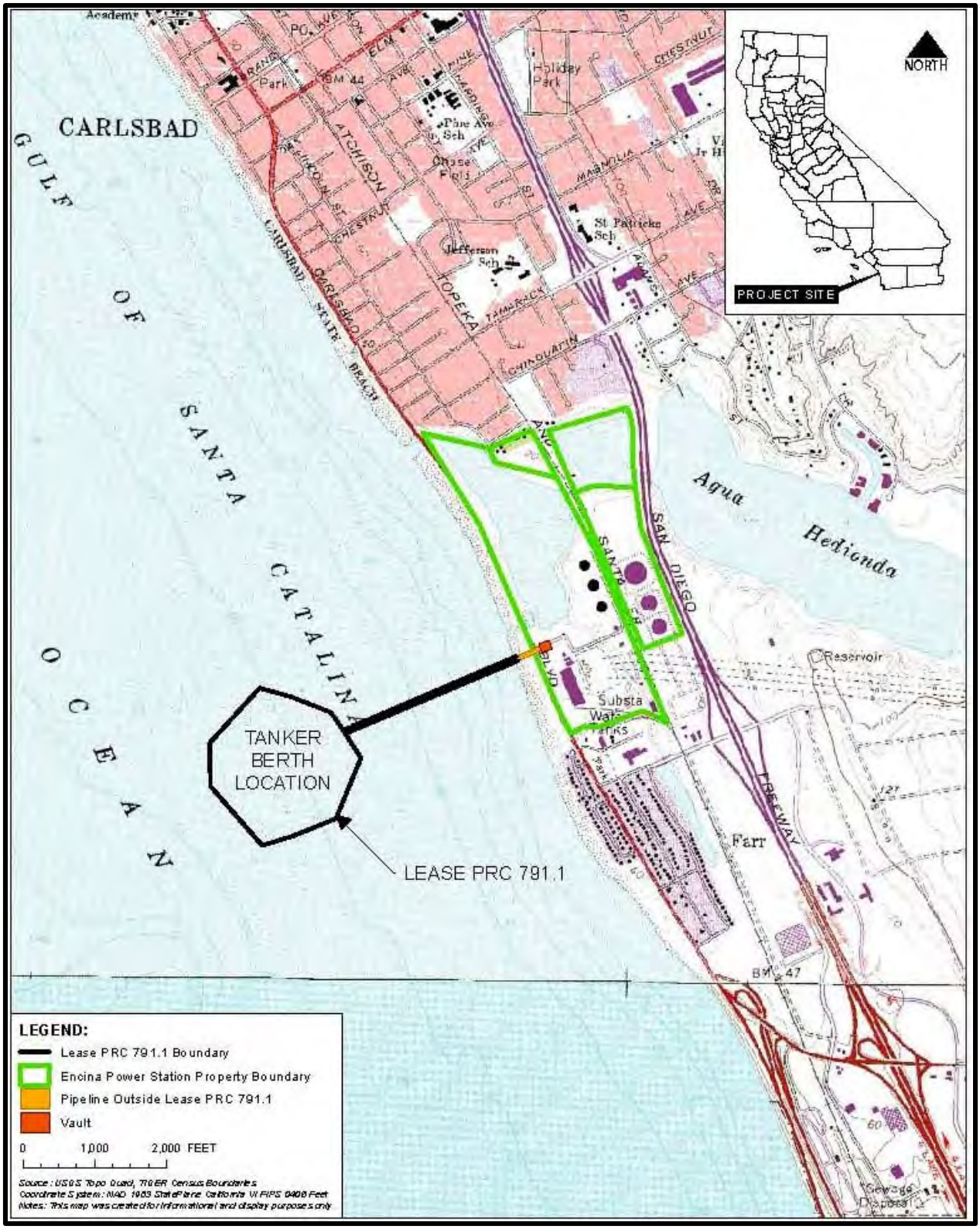

Figure ES-1. Project Site Location

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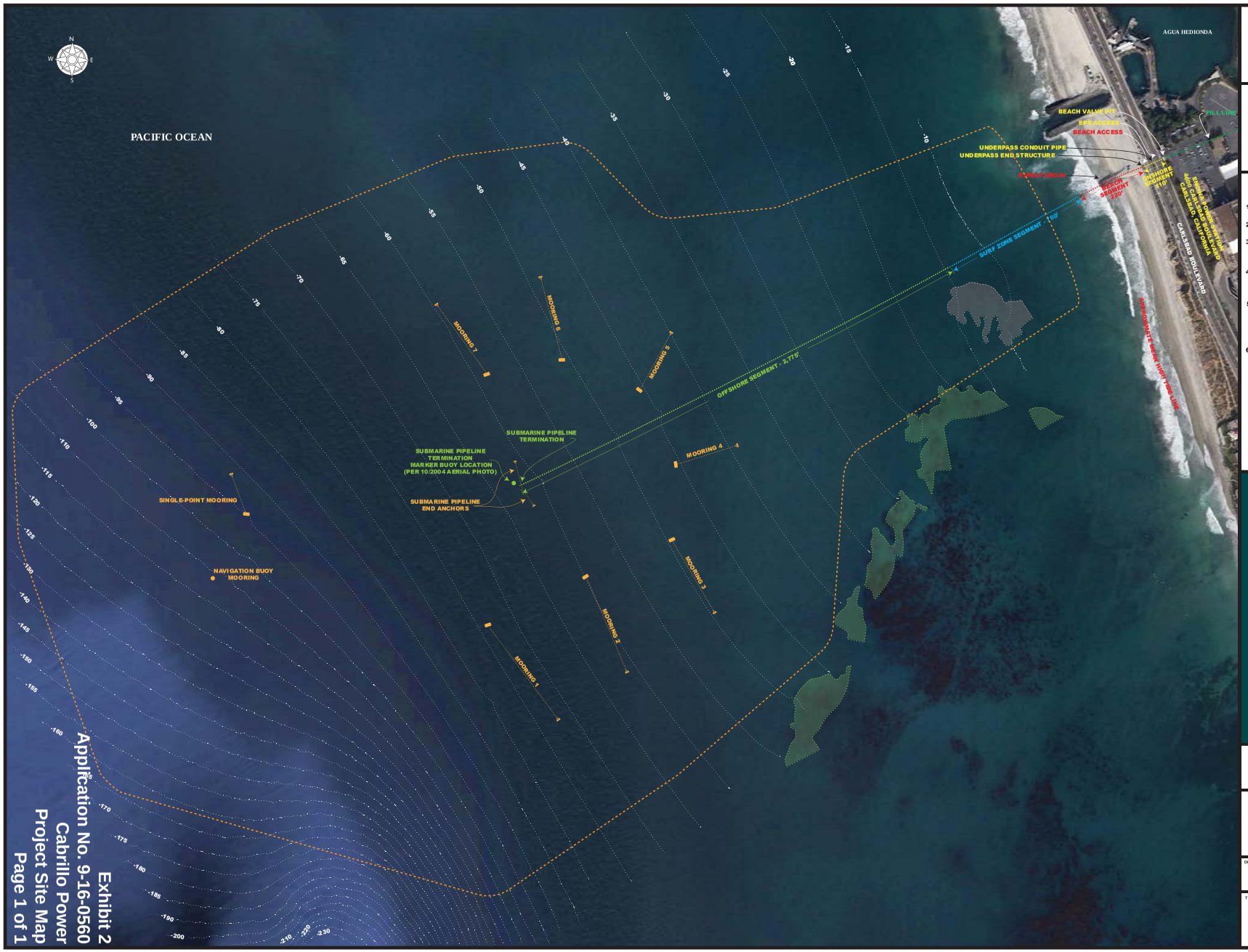

PROJECT SITE MAP

ENCINA POWER STATION MARINE OIL TERMINAL DECOMMISSIONING PROJECT

NOTES

1. AERIAL PHOTOGRAPH GOOGLE EARTH IMAGERY DATED 11/2/1212
2. BATHYMETRY FUGRO PELAGOS SURVEY DATED APRIL 2013
3. TANKER BERTH MOORING BUOY LOCATIONS SHOWN PER AERIAL PHOTOGRAPH OF OCTOBER 1, 2004 (MOORING BUOYS WERE REMOVED IN 2010)
4. TANKER BERTH MOORING ANCHOR LOCATIONS ARE APPROXIMATE LOCATIONS AND WILL BE LOCATED DURING DECOMMISSIONING ANCHOR RECOVERY OPERATIONS.
5. SUBMARINE PIPELINE TERMINATION MARKER BUOY IS DISPLAYED TO SHOW APPROXIMATE POSITION OF MARKER BUOY SYSTEM. THE MARKER BUOY NO LONGER EXISTS AND ONLY THE MARKER BUOY ANCHOR LEG AND CLUMP REMAIN ON THE SEAFLOOR.
6. THE KELP BED LOCATIONS ARE TAKEN FROM THE FUGRO PELAGOS APRIL 2013 SURVEY. HOWEVER, A REVIEW OF HISTORICAL AERIAL PHOTOGRAPHS OF THE OFFSHORE SITE INDICATE THAT THE LOCATION OF THE KELP BEDS AND THEIR DIMENSIONS AND DENSITY CHANGE FROM YEAR TO YEAR. CABRILLO PROPOSES TO REASSESS THE BOUNDARIES OF THE KELP BEDS DURING THE DECOMMISSIONING PROJECT'S PRE-DECOMMISSIONING SEAFLOOR DEBRIS SURVEY PRIOR TO THE ARRIVAL OF MARINE EQUIPMENT AT THE OFFSHORE SITE. THE ANCHORAGES OF MARINE EQUIPMENT WILL BE ADJUSTED TO ELIMINATE CONTACT WITH KELP BEDS AS THEY EXIST AT THE TIME OF THE DECOMMISSIONING WORK. FINAL ANCHORAGE LOCATIONS WILL BE PROVIDED IN THE CONTRACTOR WORK PLAN PRIOR TO THE ARRIVAL OF MARINE EQUIPMENT AT THE OFFSHORE SITE.

LEGEND

- TANKER BERTH MOORING BOUY, ANCHOR AND CHAIN
- OFFSHORE SUBMARINE PIPELINE SEGMENT
- SURF ZONE SUBMARINE PIPELINE SEGMENT
- BEACH SUBMARINE PIPELINE SEGMENT
- ONSHORE SUBMARINE PIPELINE SEGMENT
- FILL LINE (BEACH VALVE PIT TO TANK FARM)
- KELP BEDS - PER FUGRO PELAGOS APRIL 2013 SURVEY
- ROCK OUTCROPPINGS - PER FUGRO PELAGOS APRIL 2013 SURVEY
- OFFSHORE PROJECT SAFETY AND SURVEY BOUNDARIES

SCALE: 1" - 200'

0 100' 200' 300' 400'

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

LONGITUDE 123, INC.
Marine Project Consulting and Construction Management

DRAWN BY:	DRAWING NO.	DATE:
MIS LONGITUDE 123, INC.	12-011-D-01 rev 4	1/31/14

TITLE:

PROJECT SITE MAP APPENDIX A

Exhibit 2
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Cabrillo Power
Project Site Map
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Figure ES-3. Onshore and Beach Site Map

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Onshore Project Elements
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FIGURE A2-17
ONSHORE WORK AREAS

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Cabrillo Power
Onshore Project Elements
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BEACH VALVE PIT EXTERIOR

BEACH VALVE PIT INTERIOR

Figure 2-1. Beach Valve Pit Photographs

Photograph of original construction in 1953. The termination of the underpass pipe conduit (8' dia) and retaining wall (wing walls) can be seen. The underpass end structure is shown under construction. The retaining wall is now located underneath the #2 southbound lane of Carlsbad Blvd. The end structure, when constructed, extended another 16'-7-1/4" toward the beach.

Photograph of end structure taken January 2013. The round vent and manhole access port of the underpass end strucure are all that is visible of above the beach sand. Approximately 10' of the end structure's 16'-7-1/4" length is located underneath Carlsbad Blvd. and the sidewalk shown in this photograph.

Figure 2-2. Underpass End Structure Photographs

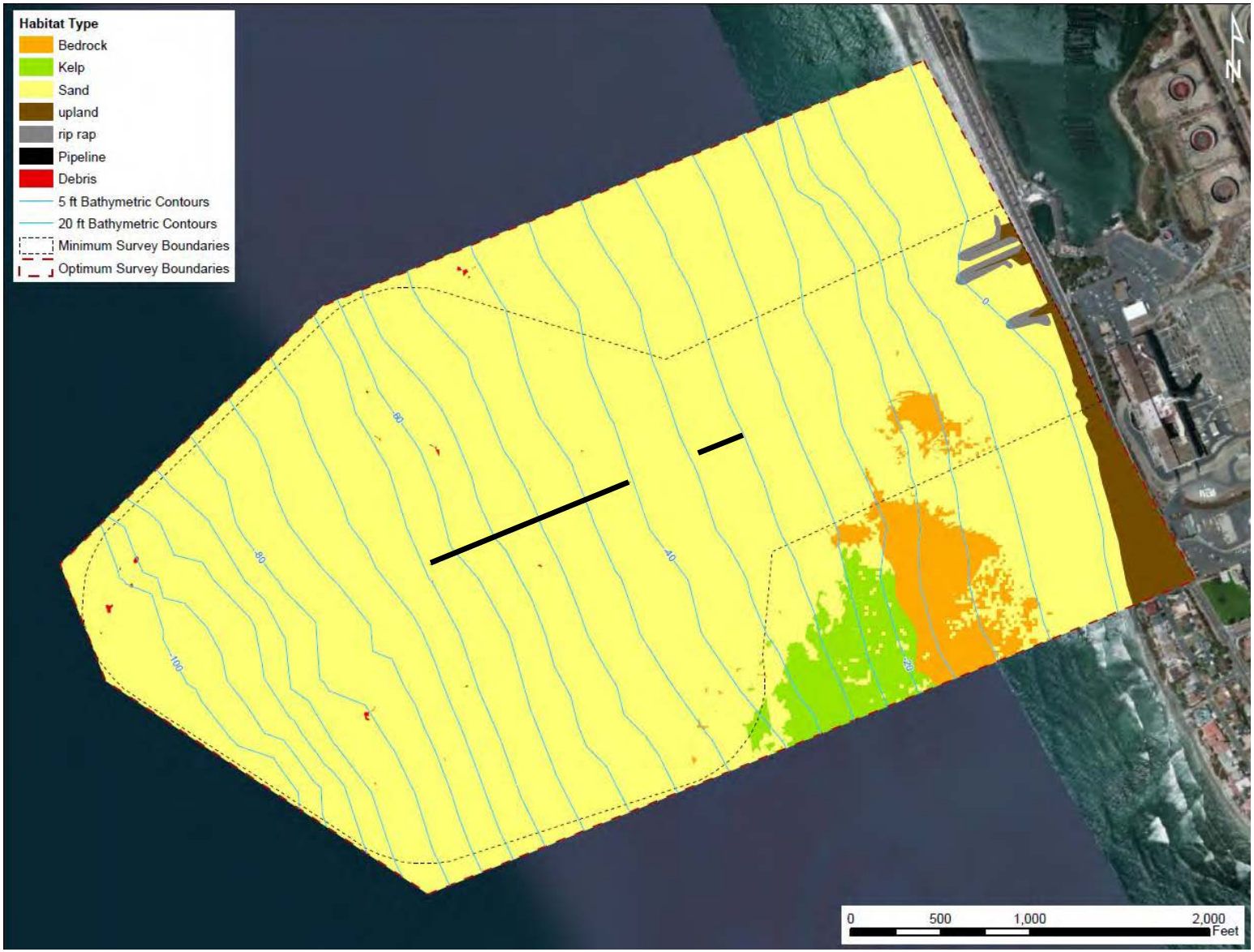

Figure 4. Marine habitats in the vicinity of the Encina Power Station

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Cabrillo Power
Marine Habitats in Project Area
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Figure 3. Preliminary Anchor Pre-Plot

Photos of Project Site and Riprap Groin

September 2016. Photo by Mark Johnsson

September 2013. Source: California Coastal Records Project