3.4 BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES – Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

The Project pipeline extends approximately 2,000 feet into the aquatic habitat of the Bay. The pipeline would be removed in approximately 50-foot sections. An approximately 20-foot section would be removed within the shoreline under existing riprap where the pipeline would be cut and grouted.

The predominant habitat at the Project site is aquatic, including open water (pelagic), soft sediment (benthic) and intertidal riprap. The open waters of the Bay vary in temperature, salinity, dissolved oxygen, and turbidity within the water column depending on water depth, location, and season. The water column can be classified as shallow-

water/shoals and deepwater/channels (National Oceanic and Atmospheric Administration [NOAA] 2007). The water column provides habitat for plants (phytoplankton), invertebrates (zooplankton), fishes, birds, and marine mammals. The fish community inhabiting the Bay and the western portions of Suisun Bay, including the Project site, is dominated by northern anchovy (*Engraulis mordax*), Pacific herring (*Clupea pallasii*), American shad (*Alosa sapidissima*), jacksmelt (*Atherinopsis californiensis*), longfin smelt (*Spirinchus thaleichthys*), and striped bass (*Morone saxatilis*). Seasonally, Chinook salmon (*Onchorhynchus tshawytscha*) becomes a dominant species and delta smelt (*Hypomesus transpacificus*) can also be present as well as adult steelhead trout and smolts (*Onchorhynchus mykiss*) (CDFW 2000-2007).

More than 30 fish taxa were observed inhabiting or utilizing the benthic habitat of the Bay between 2000 and 2007. This fish community is dominated by the Bay goby (*Lepidogobius lepidus*), English sole (*Parophrys vetulus*), striped bass, plainfin midshipman (*Porichthys notatus*), Pacific staghorn sculpin (*Leptococottus armatus*), longfin smelt, yellowfin goby (*Acanthogobius flavimanus*), cheekspot goby (*Ilypnus gilberti*), white croaker (*Genyonomus lineatus*), speckled sanddab (*Citharichthys stigmaeus*), shiner surfperch (*Cymatogaster aggregata*), California halibut (*Paralichthys californicus*), starry flounder (*Platichthys stellatus*), Pacific herring, American shad (*Alosa sapidissima*), and diamond turbot (*Pleuronichthys guttulatus*) (CDFG Interagency Ecological Program 2000-2007). Several of the groundfish listed above, such as English sole and starry flounder, as well as other occasional inhabitants such as sand sole (*Psettichthys melanostictus*) and big skate (*Raja binoculata*), are covered by the Pacific Groundfish Management Plan which identifies San Francisco Estuary as Essential Fish Habitat (EFH) for these species (Olberding 2008). The North American green sturgeon (*Acipenser medirostris*) is known to inhabit the waters and bottom (benthic) habitat of the Bay.

3.4.1.1 San Pablo Bay Intertidal Habitat

The Project pipeline reaches land and is protected by quarried rock and concrete debris (Figure 1-3). This shoreline riprap provides some hard bottom intertidal habitat that supports barnacles, bryozoans, hydrozoans, the bay mussel, occasional sponges, and green algae. Several species of crabs, isopods, snails, and amphipods may also be present.

Soft bottom substrate ranges between soft mud with high silt and clay content and areas of sand. These latter tend to occur in locations subjected to high tidal or current flow. The predominant seafloor habitat in the Project area is soft sediment composed of combinations of mud/silt/clay particles (Figure 1-2). Exposure to wave and current action, temperature, salinity, and light penetration determine the composition and distribution of organisms within these soft sediments. These areas support mollusks, amphipods, polychaetes and several species of polydora (USFWS 1988).

3.4.1.2 Special Status Species

The Project and its potential effects to threatened and endangered species were described and evaluated in a biological assessment (BA) submitted to California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) (Boudreau Associates & Jahn 2013). The species of concern that have the potential to occur within the Project site are individuals of the green sturgeon southern Distinct Population Segment, Sacramento River winter-run Chinook, Central Valley spring-run Chinook, Central valley steelhead, or Central California Coast steelhead evolutionarily significant units, longfin smelt, and delta smelt.

The terrestrial habitat within the Project area is considered barren/developed. This includes the concrete riprap used to stabilize the shore, as well as the railroad, track ballast, and railroad ties (Figure 1-3). This habitat does not support listed terrestrial species. Furthermore, the area in the immediate vicinity of the Project does not provide good habitat for any terrestrial special-status species beyond foraging or for transient individuals. There is a high probability that this area supports feral cats (*Felis catus*) and dogs (*Canis familiaris*), as well as common bird species such as rock doves (*Columba livia*), starlings (*Sturnus vulgaris*), and sea gulls (*Larus* sp.). Therefore, terrestrial listed species were eliminated from further evaluation because: (1) the Project site or the immediate area does not provide suitable habitat, or (2) the known range for a particular species is outside of the Project site and/or the immediate area.

3.4.2 Regulatory Setting

Federal and State laws and regulations pertaining to this issue area and relevant to the Project are identified in Table 3-1. The Project is consistent with San Francisco Bay Plan (BCDC 2008) policies and objectives regarding biological resources and The San Francisco Bay Subtidal Habitat Goals Report (2010). No Habitat Conservation Plan or Natural Community Conservation Plan currently applies to the Project site.

3.4.3 Impact Analysis

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Less than Significant with Mitigation. The Project would require the removal of the pipeline and riprap on the shoreline with a 3-week construction period. The riprap would be replaced after the final segment of pipeline is removed, and the pipeline under the landward will be abandoned in place. The riprap will be temporarily stockpiled atop the riprap immediately surrounding the pipeline. After removal and capping is complete, the riprap will be placed back to cover the cut and capped end of the wastewater pipeline and result in a shoreline similar to existing conditions to continue protecting other

abandoned pipelines from the 2010 Coscol Petroleum/El Paso Corporation Marine Terminal Deconstruction and Pipeline Abandonment Project (Coscol Project) (Figure 2-1). Removal of the pipeline and riprap would result in short-term disturbance of bottom sediments and resuspension of sediments. Disturbed or resuspended sediments could increase the exposure of chemical concentrations to aquatic receptors in the localized area and could result in adverse effects on aquatic organisms, including sensitive and special-status species. Other potential direct and indirect effects, including direct mortality and permanent habitat loss/degradation, are not expected to occur, therefore, the below discussion is focused on the potential biological impacts related to disturbing sediment in the Bay. A more detailed description of the water quality related effects of sediment resuspension and increased turbidity can be found in Section 3.8.

Temporary resuspension of sediments in the water column can lower levels of dissolved oxygen and possibly release chemicals present in the sediments into the water column. The concentration of suspended sediments would vary based on the production rate of removal and duration of the construction activity, and would also depend on the methods used, the quality of equipment, and care of the operator. In all cases, increased turbidity levels would be relatively short-lived and generally confined to within a few hundred feet of the activity depending on current velocity, tidal cycle and wind. After initially high levels of resuspended sediment, sediments would disperse and background levels would be restored within hours of disturbance.

The potential effects of suspended sediment within the water column on fish include gill lacerations (at very high and prolonged exposures), increased “coughing” behavior, decreased feeding success, and avoidance behaviors (Wilber and Clarke 2001). Removal of the pipeline has the potential to resuspend sediment in the immediate vicinity of extraction of the pipeline. The maximum volume of sediment disturbed by this operation would consist of the volume of sediment within a 50-foot section of pipeline, a 1-foot radius and a 2-foot depth surrounding the portion of pipeline being pulled above the mudline surface. This volume equates to approximately 3.7 cubic yards per 50-foot section if all the sediment above and surrounding the 8-inch pipeline were dispersed into the water column during extraction. In total, to remove the 2,020 feet of pipeline, approximately 50-foot sections would be removed which would equate to a maximum of 148 cubic yards of sediment potentially being disturbed (in comparison, even a small dredging project would disturb upwards of 5,000 cubic yards of sediment per day).

Substantially less sediment than 148 cubic yards would likely be disturbed because approximately 40 percent (800 feet) of the pipeline offshore is on the surface of the mud and not submerged (Figure 1-2). In addition, the pipeline is only 8 inches in diameter and the surrounding sediment is not significantly consolidated; therefore, the submerged portion of the pipeline would move relatively easily through the mud to the surface with minimal disturbance and it is unlikely that the entire volume of sediment would be dispersed. As the pipeline traverses through the mud (on average covered

with about 2 feet of sediment), the sediment would fall in into the void below. Sediment would only be resuspended at the point where the pipeline is pulled above the mudline into the water. As a result, it is anticipated that only a small percentage of the total sediment volume would be resuspended at the point of extraction.

The sediment plumes that may be caused by the 50-foot sections of pipeline that would be removed are expected to be extremely small in area and short in duration. Based on studies of recent projects by the U.S. Army Corps of Engineers (USACE 2004), any potential impact due to resuspended sediments would be limited to a distance up and down current of approximately 100 feet. Recent studies by the San Francisco Estuary Institute (SFEI 2008) determined that the short-term effects of dredging on sensitive fish species due to dredging activities would be minor. Considering that the volume of sediment being disturbed by this Project would be a significantly smaller fraction (by an order of magnitude) than that disturbed by even a small scale dredging operation, it is not anticipated that the impacts to aquatic organisms resulting from pipeline removal would be significant, particularly with implementation of the measures described below.

Resuspended sediment levels caused by natural phenomena such as floods, storms, large tides, and winds are often higher and of longer duration than those caused by dredging, especially in lakes and bays. Previous studies have demonstrated that marine organisms are accustomed to sediment resuspension levels greater than those generated by dredging (Stern and Stickle 1978, Parr et al. 1998, Pennekamp et al. 1996, Herbich 2000) and consequently to activities such as pipeline removal. Resuspended sediment concentrations within San Francisco Bay have been reported between 100-200 milligrams per liter (mg/L) due to tidal influence alone (Buchanan and Schoellhamer 1996; Schoellhamer 1996). As stated above, normal circulation and strong currents along the waterfront rapidly circulate and disperse water temporarily affected by construction activities. Turbidity plumes would disperse within a matter of hours, and the particulate concentrations would be diluted to levels that would pose no major threat to water quality or aquatic wildlife.

The chemical characterization of the sediments in the Project area indicates that metal concentrations were similar to or below San Francisco Bay background levels (San Francisco Bay Regional Water Quality Control Board [SFBRWQCB] 1998). Sediment concentrations of mercury were 0.169 milligrams per kilogram (mg/kg), which is below the Total Maximum Daily Load limit for mercury in sediment of 0.469 mg/kg (SFEI 2013). While the cadmium level was slightly above San Francisco Bay background levels, it was below the cadmium Effects Range-Low (ER-L) of 1.2 mg/kg (Long et al. 1995) and would be unlikely to cause an adverse biological effect. Organotins and organochlorine pesticides were below their respective MDLs. Total polynuclear aromatic hydrocarbons (PAHs), total polychlorinated biphenyls (PCBs), and total Dichloro-diphenyl-trichloroethane (DDT) were reported at 1,207 micrograms per kilogram (µg/kg), 19.3 µg/kg and 0 µg/kg, respectively; each was below San Francisco Bay background

levels (SFBRWQCB 1998). In addition, a suspended sediment bioassay performed on the Project site sediment did not show any indication of toxicity.

Many different laboratory studies have attempted to determine the levels of suspended sediments that cause impacts on the physiology of marine organisms. Peddicord and McFarland (1978) found that most of the fish and invertebrates studied could withstand levels of resuspended sediments of up to 250 to 400 mg/L for a period of about 9 to 10 days without effect. Clarke and Wilber (2000) provide extensive citations of suspended sediment concentrations related to various effect endpoints.

Green sturgeon, salmonids, longfin smelt, and delta smelt in the estuary commonly encounter areas of increased turbidity due to storm flow runoff events, wind and wave action, and benthic foraging activities of other aquatic organisms. Fish may be expected to avoid areas of high turbidity (Berg and Northcote 1985) and return when concentrations of suspended solids are lower. Moreover, as emphasized by Wilber and Clarke (2001), the short duration of expected encounters with the Project are an important aspect that would minimize any expected effects of sediment suspension. The minor and localized areas of turbidity associated with Project construction would not be expected to result in harm or injury, or behavioral responses that impair migration, foraging, or make listed fish more susceptible to predation. If green sturgeon, salmonids, longfin smelt or delta smelt temporarily relocate from areas of increased turbidity, areas of similar value are available in the Bay adjacent to the Project site and offer habitat of equal or better value for displaced individuals. Adjacent habitat areas also provide adequate carrying capacity to support individuals that are temporarily displaced during construction activities. Even if they potentially encounter resuspended sediments it is unlikely that the duration and exposure would be extensive enough to cause adverse impacts.

Because of the small shoreline component of the Project along existing riprap, there is little potential for impacts on special-status terrestrial species from this component of the proposed Project.

The Applicant has either proposed or agreed to the following mitigation measures (MMs) to minimize sediment resuspension and otherwise ensure potential impacts to aquatic organisms are less than significant:

MM BIO-1: Minimize Sediment Resuspension During Removal Activities. Divers shall be used to affix straps to the pipeline (no jetting or mechanical disturbance of the sediments shall be used) to minimize sediment resuspension. Spuds shall be used on the barge to minimize anchoring and the pipeline shall be raised slowly to the barge in order to minimize disturbance to the surrounding sediments. For the onshore work, where feasible, personnel and materials shall

be transported to the barge by means of a gangway from the shore to limit use of support vessels and minimize disturbance to bottom sediments.

MM BIO-2: Environmental Work Window. All in-water work shall be performed between June 1 and October 31 to minimize effects on sensitive species.

Based on the results of the sediment testing, existing research findings, the short duration of disturbance due to construction activities, the limited area and quantity of resuspended sediment, and the implementation of **MMs BIO-1** and **BIO-2**, sediments that may be displaced or resuspended during the removal of the wastewater pipeline would result in a less than significant impact to sensitive species in the immediate or general vicinity of construction activities.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact. Due to the limited nature of the terrestrial component of the Project, there is little potential for impacts on special-status terrestrial species or riparian habitat. This is also true for Project-related personnel boarding the barge from the shore.

While not necessarily formally designated as such by the CDFW or the USFWS, for purposes of this analysis, the Bay and estuary system seafloor habitat was considered a sensitive natural community because of its biological value and unique ecological characteristics. The benthic habitat of the area where the pipeline would be removed as well as where the barge may ground during extreme low tides would be temporarily disturbed by pipeline removal and riprap removal and placement. These activities could result in physical displacement, habitat disturbance, and short-term temporary loss of foraging area for special-status fish such as green sturgeon, salmonids, longfin smelt, and delta smelt and Fishery Management Plan managed groundfish. Potential total temporary habitat loss for these activities is approximately 0.92 acre, which includes the pipeline length, a 20-foot buffer on each side of the pipeline, the barge, and riprap area.

Altering benthic habitat and associated infaunal and epifaunal communities can result in the loss or reduction of suitability as fish foraging habitat, especially for sensitive species including salmon, steelhead, green sturgeon, and groundfish. Following pipeline removal and replacement of riprap on the shoreline, deposition of fine sand-mud sediments, comparable to pre-removal conditions, would begin almost immediately and the benthic community inhabiting those sediments is expected to recover to pre-Project composition and abundances within a few months to up to 2 years, depending on when removal occurs and other ecological factors affecting recolonization (Newell et al. 1998). Based on the very small area of the Bay affected and the temporary nature of the activities, the potential impact on seafloor habitat is less than significant.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. There are no wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) within the Project area.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation. Due to the limited area of onshore work, there is little potential for interference to native resident or migratory wildlife species from the onshore component of the Project. Pipeline removal activities (e.g., pipeline removal, vessel movements and mooring, mooring anchor placement, and barge grounding) of 3 weeks of construction period could result in physical disturbance and migration movement impacts to special-status fish species and other fish species. However, implementation of **MM BIO-2** would limit potential effects and ensure that impacts remain less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. There are no local policies or ordinances protecting biological resources that currently apply to the Project site.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

No Impact. The Project is consistent with the policies and objectives of the San Francisco Bay Plan (BCDC 2008) regarding biological resources and The San Francisco Bay Subtidal Habitat Goals Report (2010).

3.4.4 Mitigation Summary

Implementation of the following mitigation measures would reduce the Project-related impacts to less than significant.

- MM BIO-1: Minimize Sediment Resuspension During Removal Activities.
- MM BIO-2: Environmental Work Window.