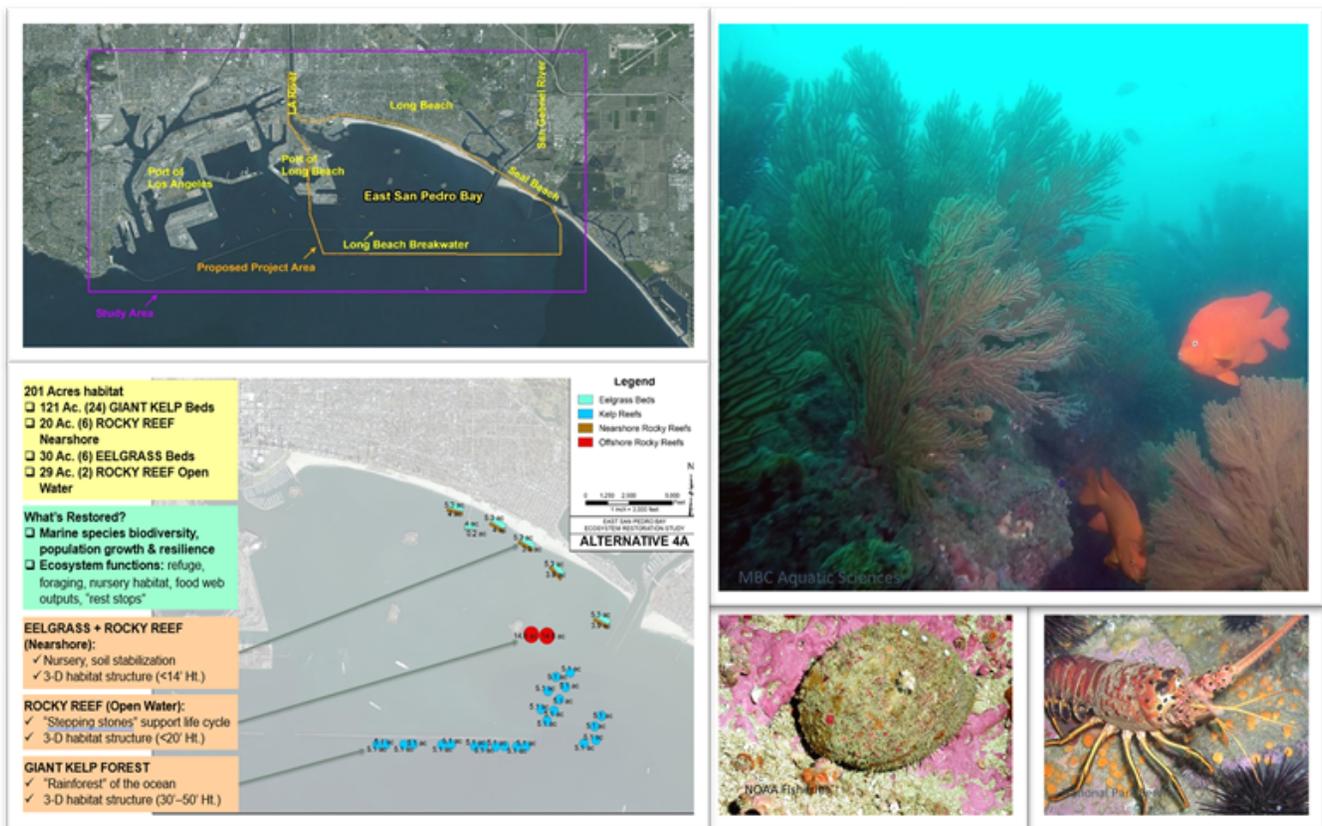


# FINAL INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT (EIS/EIR)

## APPENDIX G: CLEAN WATER ACT SECTION 404(b)(1) EVALUATION AND 401 LETTER OF SUPPORT

### EAST SAN PEDRO BAY ECOSYSTEM RESTORATION STUDY Long Beach, California

January 2022



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## **1 CLEAN WATER ACT SECTION 404(B)(1) REGULATORY BACKGROUND**

Section 404 of the Clean Water Act (CWA) governs the discharge of dredged or fill material into Waters of the U.S. Although the Corps does not process and issue permits for its own activities, the Corps authorizes its own discharges of dredged or fill material by applying all applicable substantive legal requirements, including application of the Section 404(b)(1) Guidelines, 33 Code of Federal Regulations (C.F.R.) 336.1(a).

Under the Section 404(b)(1) Guidelines, an analysis of practicable alternatives is the primary tool used to determine whether a proposed discharge is prohibited. The Section 404(b)(1) Guidelines prohibit discharges of dredged or fill material into Waters of the U.S. if a practicable alternative to the proposed discharge exists that would have less adverse impacts on the aquatic ecosystem, including wetlands, as long as the alternative does not have other significant adverse environmental impacts (40 C.F.R. 230.10(a)). An alternative is considered practicable if it is available and capable of being implemented after considering cost, existing technology, and logistics in light of overall project purpose (40 C.F.R. 230.10(a)(2)). The Section 404(b)(1) Guidelines follow a sequential approach to project planning that considers mitigation measures only after the project proponent shows no practicable alternatives are available to achieve the overall project purpose with less environmental impacts. Once it is determined that no practicable alternatives are available, the guidelines then require that appropriate and practicable steps be taken to minimize potential adverse effects on the aquatic ecosystem (40 C.F.R. 230.10(d)). Such steps may include actions controlling discharge location, material to be discharged, the fate of material after discharge or method of dispersion, and actions related to technology, plant and animal populations, or human use (40 C.F.R. 230.70-230.77).

Beyond the requirement for demonstrating that no practicable alternatives to the proposed discharge exist, the Section 404(b)(1) Guidelines also require the Corps to compile findings related to the environmental impacts of discharge of dredged or fill material. The Corps must make findings concerning the anticipated changes caused by the discharge to the physical and chemical substrate and to the biological and human use characteristics of the discharge site.

These guidelines also indicate that the level of effort associated with the preparation of the alternatives analysis be commensurate with the significance of the impact and/or discharge activity (40 C.F.R. 230.6(b)).

## **2 BASIC AND OVERALL PROJECT PURPOSE**

The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether a project is water dependent. The Section 404(b)(1) Guidelines (Guidelines) state that if an activity associated with the discharge proposed for a special aquatic site does not require access or proximity to, or siting within, the special aquatic site in question to fulfill its basic purpose, the activity is not water-dependent. The basic project purpose is ecosystem restoration. The project is water dependent. Thus, the rebuttable presumptions do not apply.

The overall project purpose serves as the basis for the Corps’ section 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the goals and accounts for logistical considerations for the project, and which allows a reasonable range of alternatives to be analyzed. It is critical that the overall project purpose be defined to provide for a meaningful evaluation of alternatives. It should not be so narrowly defined as to give undue deference to the preferred alternative, thereby unreasonably limiting the consideration of alternatives. Conversely, it should not be so broadly defined as to render the evaluation unreasonable and meaningless.

The overall project purpose is ecosystem restoration of imperiled aquatic habitats within East San Pedro Bay (ESPB).

### 3 ALTERNATIVES CONSIDERED

Per the Guidelines, alternatives analysis required by the National Environmental Policy Act (NEPA) will generally suffice as the alternatives analysis under the Guidelines. On occasion, these NEPA documents may address a broader range of alternatives than required to be considered under Guidelines or may not have considered the alternatives in sufficient detail to respond to the requirements of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information.

The nature of the proposed action would require work within waters of the US. Furthermore, the range of alternatives carried forward under NEPA overlap with the range of alternatives to be considered under the Guidelines. Thus, the range of NEPA alternatives are sufficient for evaluation under the Guidelines.

#### 3.1 DESCRIPTION OF ALTERNATIVES

##### 3.1.1 ALTERNATIVE 2

Alternative 2 would entail restoration of aquatic habitats as shown below. Because the fill areas would be located seaward of the high tide line, the entirety of the fill areas are located within waters of US.

Final Array Alternative	Total Fill Area (ac)
<b>ALT 2 Total</b>	<b>162.26</b>
Eelgrass	25.01
Kelp	121.38
Nearshore Reef	15.87

The quantity and the type of materials proposed for discharge into waters the US are shown below.

<b>Alternative 2</b>				
<b>Measure</b>	<b>Material Type</b>	<b>Approximate Quantity</b>	<b>Unit</b>	<b>Representative Size</b>
<b>Nearshore Reefs</b>	Armor Stone	137,000	tons	1 - 10 tons
	Filter Stone	55,000	tons	~ 1 ton
	Quarry Stone	120,000	tons	~ 10 - 1000 lbs
<b>Kelp Reefs</b>	Quarry Stone	132,000	tons	500 lbs
<b>Eelgrass</b>	Sand	100,000	yd <sup>3</sup>	0.2 mm

3.1.2 ALTERNATIVE 4A

Alternative 4A would entail restoration of aquatic habitats as shown below. Because the fill areas would be located seaward of the high tide line, the entirety of the fill areas are located within waters of US.

<b>Final Array Alternative</b>	<b>Total Area (ac)</b>
<b>ALT 4A Total</b>	<b>200.69</b>
Eelgrass	30.27
Kelp	121.38
Nearshore Reef	19.86
Offshore Reef	29.19

The quantity and the type of materials proposed for discharge into waters the US are shown below.

<b>Alternative 4A</b>				
<b>Measure</b>	<b>Material Type</b>	<b>Approximate Quantity</b>	<b>Unit</b>	<b>Representative Size</b>
<b>Open Water Reefs</b>	Armor Stone	183,000	tons	10 tons
<b>Nearshore Reefs</b>	Armor Stone	176,000	tons	1 - 10 tons
	Filter Stone	55,000	tons	~ 1 ton
	Quarry Stone	134,000	tons	~ 10 - 1000 lbs
<b>Kelp Reefs</b>	Quarry Stone	132,000	tons	500 lbs
<b>Eelgrass</b>	Sand	100,000	yd <sup>3</sup>	0.2 mm

3.1.3 ALTERNATIVE 8

Alternative 4A would entail restoration of aquatic habitats as shown below. Because the fill areas would be located seaward of the high tide line, the entirety of the fill areas are located within waters of US.

Final Array Alternative	Total Area (ac)
<b>ALT 8 Total</b>	<b>371.86</b>
Eelgrass	52.31
Emergent Island	23.82
Kelp	121.38
Nearshore Reef	19.86
Offshore Reef	102.15
Oyster Reef	0.27
Tidal Salt Marsh	52.07

The quantity and the type of materials proposed for discharge into waters the US are shown below.

Alternative 8				
Measure	Material Type	Approximate Quantity	Unit	Representative Size
<b>Sandy Islands</b>	Armor Stone	336,000	tons	11 tons
	Filter Stone	37,000	tons	~ 1 ton
	Fill Material (sand)	1,057,000	yd <sup>3</sup>	N/A
	Sand	276,000	yd <sup>3</sup>	0.2 mm
<b>Coastal Wetlands [LARE / Pier J]</b>	Quarry Stone	10,000 / 24,000	tons	~ 10 - 1000 lbs
	Armor Stone	3,000 / 24,000	tons	1 - 3 tons
	Concrete	5,000 / 43,000	yd <sup>3</sup>	N/A
	Fill Material (sand)	34,000 / 1,899,000	yd <sup>3</sup>	N/A
	Sand	81,000 / 339,000	yd <sup>3</sup>	0.2 mm
<b>Open Water Reefs</b>	Armor Stone	1,540,000	tons	10 tons
<b>Nearshore Reefs</b>	Armor Stone	176,000	tons	1 - 10 tons
	Filter Stone	55,000	tons	~ 1 ton
	Quarry Stone	134,000	tons	~ 10 - 1000 lbs
<b>Kelp Reefs</b>	Quarry Stone	132,000	tons	500 lbs
<b>Eelgrass</b>	Sand	100,000	yd <sup>3</sup>	0.2 mm

### 3.2 NON-NAVIGATIONAL DREDGING

Discharges of fill material into waters of the US associated with non-navigation dredging is subject to regulation under Section 404 of the CWA. Typical discharges of fill material associated with dredging are fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow.

Under all action alternatives, approximately 100,000 cubic yards of sand would be dredged from the Surfside/Sunset borrow area for backfilling into areas where eelgrass would be

planted. The non-navigational dredging would affect approximately 20 acres of waters of the US.

Under Alternative 8, an additional approximately 3,686,000 cubic yards of sand would be dredged from the Surfside/Sunset borrow area for backfilling into areas where the sandy islands and wetlands would be constructed. The non-navigational dredging would affect approximately 200 acres of waters of the US. Thus, Alternative 8 would in total dredge approximately 3,786,000 cubic yards of sand affecting approximately 220 acres.

The benthic environment of the Surfside/Sunset borrow area is composed of a barren sandy environment. There are no special aquatic sites, such as eelgrass beds or rocky reefs, within the dredge area.

Acres of impacts to waters of the US associated with non-navigation dredging is shown below.

Alternative	Eelgrass Backfill	Sandy Island/Wetland	Total
2	20 acres	n/a	20 acres
4A	20 acres	n/a	20 acres
8	20 acres	200 acres	220 acres

Non-navigational dredging would result in temporary impacts to waters of the US. Physical impacts would include a depression where excavation occurred and disturbance of previously consolidated benthic substrate. Biological impacts would include disturbance and mortality of benthic organisms within the affected substrate. Shoaling and currents are expected to slowly fill in depressions over a period of time. Likewise, disturbed benthic substrate would reconsolidate. Benthic organisms in adjoining areas would recolonize the affected areas.

### 3.3 OPERATIONS AND MAINTENANCE (O&M)

Under all alternatives, 5-10 years of adaptive management would be implemented subsequent to construction until success criteria are met, as described in Appendix F of the IFR. This may include actions such as additional vegetation or wildlife surveys, eelgrass transplanting, and extension or repair of rocky reefs.

Three aquatic habitats are common to all action alternatives: eelgrass beds, kelp beds and rocky reefs. Furthermore, Alternative 8 has additional aquatic habitats such as the sandy island, coastal wetlands, and oyster reefs. O&M of eelgrass beds, kelp beds, coastal wetlands, and oyster reefs would not result in notable discharges of fill material since O&M activities would consist of replanting, transplanting, and addition of shell hash. O&M of the rocky reefs may periodically result in discharges of stone. Typically, O&M would be conducted every 10 years or after a strong storm event that has displaced enough stones to justify the cost of mobilization. Likewise, maintenance of the sandy island (Alternative 8) may periodically require discharge of

sand after strong storm events have sufficiently displaced enough sand to justify the cost of mobilization.

#### 4 COMPARISON OF IMPACTS TO WATERS OF THE US

Alternative 1, the No Action Alternative, would not result in construction of structural measures and thus would not impact waters of the US. Alternative 2, with the smallest construction footprint, would result in the smallest impact area and the smallest discharge volume.

Alternative 4A, would result in a slightly larger impact area and larger discharge volume relative to Alternative 2. Alternative 8, with the largest construction footprint would result in the largest impact area and largest amount of fill volume.

Measures	Construction				Fill Volume	
	Temporary Fill (Acres) <sup>1</sup>		Permanent Fill (Acres)		Rock (Tons)	Sand (cy)
	Non-SAS <sup>2</sup> Waters of the US (Acres)	SAS <sup>2</sup> Waters of the US (Acres)	Non-SAS Waters of the US (Acres)	SAS Waters of the US (Acres)		
Alternative 1	0	0	0	0	0	0
Alternative 2	20	0	162.26	0	183,000	100,000
Alternative 4A	20	0	200.69	0	680,000	100,000
Alternative 8	220	0	371.86	0	2,471,000	3,786,000
<sup>1</sup> Temporary Fill area is borrow area affected by discharges of fill associated with non-navigation dredging. <sup>2</sup> SAS = special aquatic site						

#### 5 ALTERNATIVES ANALYSIS

##### 5.1 RESTRICTIONS ON DISCHARGE

The Guidelines prohibit the discharge of dredged or fill material into waters of the US if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. 40 C.F.R. 230.10(a). To be “practicable,” an alternative must be “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.” 40 C.F.R. 230.10(a)(2).

##### 5.2 OVERALL PROJECT PURPOSE

With the exception of Alternative 1, the No Action Alternative, all alternatives meet the overall project purpose.

##### 5.3 PRACTICABILITY (TECHNOLOGY)

All alternatives can be constructed with existing technology. All alternatives would utilize conventional construction techniques and conventional construction equipment.

#### 5.4 PRACTICABILITY (LOGISTICS)

In general, the non-federal sponsor is responsible for acquisition of lands, easements, and rights-of-way required for construction. Furthermore, the non-federal sponsor is fully capable of fulfilling its responsibility. Based on the above, all action alternatives are assumed to be practicable with respect to logistics.

#### 5.5 PRACTICABILITY (COST)

The Corps uses benefit-cost analysis in evaluating practicability with respect to costs. Per Engineer Regulation (ER) 1105-2-100, the Corps is required to identify the National Ecosystem Restoration Plan (NER) for ecosystem restoration projects. The NER is the alternative that reasonably maximizes ecosystem benefits relative to cost. For reasons discussed in Chapter 4 of the IFR, Alternative 4A combines maximum ecosystem benefits in the most cost-effective manner. Thus, Alternative 4A is deemed practicable with respect to costs.

Furthermore, under ER 1105-2-100, the NER is the Recommended Plan.

Alternatives	Practicability Test			Significant Environmental Impacts to Non-Aquatic Resources?	Meets Overall Project Purpose?
	Cost	Logistics	Technology		
Alternative 1	n/a	n/a	n/a	No	No
Alternative 2	No	Yes	Yes	No	Yes
Alternative 4A	Yes	Yes	Yes	No	Yes
Alternative 8	No	Yes	Yes	Yes	Yes

## 6 ENVIRONMENTAL EFFECTS

The purpose of the Guidelines is to restore and maintain the chemical, physical, and biological integrity of the waters of the US through the control of discharges of dredged or fill material. Except as provided under CWA Section 404(b)(2), no discharge of dredged or fill material will be authorized if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, as long as the alternative does not have other significant adverse environmental consequences. In accordance with the Guidelines, the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment must be determined.

The following discussion evaluates impacts of all three alternatives on environmental resources identified in Subpart C through Subpart F of the Guidelines. The discussion is separated into construction and operation impacts. Impacts under “operation” include monitoring and adaptive management activities as well as O&M.

## 6.1 POTENTIAL DIRECT AND SECONDARY IMPACTS ON PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM (SUBPART C)

### 6.1.1 SUBSTRATE

#### *Construction (Direct)*

**Aquatic Habitats.** All alternatives would result in discharges of fill material for the construction of aquatic habitat. Under all alternatives, the primary fill materials would be sand and rocks. Sand would be procured from the nearby Surfside/Sunset borrow area. Thus, native sand would be discharged atop native sand. Rocks would be procured from upland sources and placed atop the benthic substrate within a marine environment. Furthermore, Alternative 8 would result in the discharge of concrete structures atop the sandy benthic substrate. Though the chemical composition of the upland rocks and concrete may be different from those found in the marine environment within the study area, they would provide the same functions and services as other hard substrates within the marine environment, namely hard substrate to foster establishment of marine vegetation and shelters for aquatic organisms. The fill material would permanently remain atop the benthic substrate. There would be no loss of benthic substrate.

**Non-navigation Dredging.** Typical discharges of fill material associated with dredging are fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow. Thus, native sand would be discharged atop native sand.

Alternative 2, with the smallest construction footprint would result in the smallest impact area and the smallest discharge volume. Alternative 4A, would result in a slightly larger impact area and larger discharge volume relative to Alternative 2. Alternative 8, with the largest construction footprint would result in the largest impact area and largest amount of fill volume.

#### *Construction (Secondary)*

There would be no secondary impacts.

#### *Operation (Direct)*

O&M activities for eelgrass beds and kelp beds may result in de minimis discharges of native sand for back fill associated with replanting and additional transplants. Likewise, maintenance of the sandy island under Alternative 8 may periodically require discharges of sand. Thus, native sand would be discharged atop native sand. O&M of the rocky reefs may periodically result in discharges of stone. Likewise, maintenance of the coastal wetlands under Alternative 8 may periodically require discharge structures. The fill material would permanently remain atop the benthic substrate. There would be no loss of benthic substrate.

#### *Operation (Secondary)*

There would be no secondary impacts.

### 6.1.2 SUSPENDED PARTICULATES AND TURBIDITY

#### *Construction (Direct)*

**Aquatic Habitats.** All alternatives would result in discharges of fill material for the construction of aquatic habitat. Under all alternatives, the primary fill materials would be sand and rocks. Alternative 8 would result in the discharge of concrete structures. Rocks and concrete structures would be pushed off the barge by loaders. There would be no turbidity as these structures fall through the water column. However, a temporary increase in turbidity is expected upon impact with the benthic substrate. Impacts would resuspend both sand and fine silts into the water column. Sand is expected to quickly settle out of the water column. Fine silts would remain suspended within the water column for a longer period of time but would eventually resettle onto the seabed.

Discharges of sand from the dump scows would increase turbidity throughout the water column. However, turbidity is expected to be temporary because sand is expected to quickly settle out of the water column.

**Non-navigation Dredging.** Typical discharges of fill material associated with dredging are fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow. Thus, native sand would be discharged atop native sand. Incidental discharges of sand from either the dredged or dump scows would increase turbidity throughout the water column. However, turbidity is expected to be temporary because sand is expected to quickly settle out of the water column.

*Construction (Secondary)*

There would be no secondary impacts.

*Operation (Direct)*

O&M activities for eelgrass beds and kelp beds may result in de minimis discharges of native sand for back fill associated with replanting and additional transplants. Likewise, maintenance of the sandy island under Alternative 8 may periodically require discharges of sand. Discharges of sand would increase turbidity throughout the water column. However, turbidity is expected to be temporary because sand is expected to quickly settle out of the water column.

O&M of the rocky reefs may periodically result in discharges of stone. Likewise, maintenance of the coastal wetlands under Alternative 8 may periodically require discharge structures. There would be no turbidity as these structures fall through the water column. However, a temporary increase in turbidity is expected upon impact with the benthic substrate. Impacts would resuspend both sand and fine silts into the water column. Sand is expected to quickly settle out of the water column. Fine silts would remain suspended within the water column for a longer period of time but would eventually resettle onto the seabed.

*Operation (Secondary)*

There would be no secondary impacts.

6.1.3 CONTAMINANTS

*Construction (Direct)*

**Aquatic Habitats.** All alternatives would result in discharges of fill material for the construction of aquatic habitat. Under all alternatives, the primary fill materials would be sand and rocks. Only sand deemed to be suitable for discharge into the aquatic environment would be procured from the Surfside/Sunset borrow area of San Pedro Bay and discharged into specific locations where eelgrass would be planted. Alternative 8 would result in the discharge of concrete structures. All fill material proposed for discharge are chemically inert and would not leach contaminants into the water column.

**Non-navigation Dredging.** All alternatives would result in discharges of fill during non-navigation dredging. Typical discharges of fill material associated with dredging are fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow. Thus, native sand would be discharged atop native sand. Only sand deemed to be suitable for discharge into the aquatic environment would be procured from the Surfside/Sunset borrow area of San Pedro Bay and discharged into specific locations where eelgrass would be planted. The sand was chemically tested as deemed suitable for discharge into the aquatic environment in 2018. Testing will be repeated during the planning, engineering, and design (PED) phase to confirm the sand still meets the requirements for discharge into the aquatic environment.

*Construction (Secondary)*

There would be no secondary impacts.

*Operation (Direct)*

Fill material for O&M activities would be the same as that used for construction. All fill material proposed for discharge are chemically inert and would not leach contaminants into the water column.

*Operation (Secondary)*

There would be no secondary impacts.

**6.1.4 CURRENT PATTERNS, WATER CIRCULATION, AND WATER FLUCTUATION**

*Construction (Direct)*

**Aquatic Habitats.** All alternatives would result in discharges of fill for the construction of aquatic habitat. Under all alternatives, the primary fill materials would be sand and rocks.

The natural water depth of the ESPB ranges from 20 to 50 feet. The height of the base stone layer for the kelp beds would be approximately 30 in. above the seabed and submerged in approximately 45 feet of water. The height of the nearshore rocky reef and the eelgrass bed would be approximately 10 feet to 12 feet above the seabed and submerged in approximately 8 feet of water. Offshore rocky reefs would be placed at heights ranging from 3 feet to 12 feet above the seabed. The structures would be entirely submerged in at least 15 feet of water. The reflected wave height produced by these submerged structures would be on order of 10 percent of the incident wave height. However, rocky reefs, eelgrass beds, and kelp reefs would cover a small portion of the Proposed Project Area (ranging from 162.26 to 371.86 acres of the 11,465-acre proposed Project Area). Thus, wave height changes would be minimal and would

not likely result in increased coastal erosion potential due to the small area covered and relatively low topographic relief on the ocean floor.

All discharges would not change tidal elevations, which is determined by access to the open ocean.

**Non-navigation Dredging.** Typical discharges of fill associated with dredging are fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow. Thus, native sand would be discharged atop native sand. Incidental discharges of sand from either the dredged or dump scows would not affect the currents of wave dynamics of the area where dredged material would resettle.

*Construction (Secondary)*

Eelgrass beds and kelp reefs would locally attenuate larger forces related to coastal erosion and storm water protection by reducing current velocities.

*Operation (Direct)*

O&M activities for eelgrass beds and kelp beds may result in de minimis discharges of native sand for back fill associated with replanting and additional transplants. Likewise, maintenance of the sandy island under Alternative 8 may periodically require discharge of sand. Discharges of dredged or fill material for O&M activities would not result in impacts to current patterns and water circulation.

O&M of the rocky reefs may periodically result in discharges of stone. Likewise, maintenance of the coastal wetlands under Alternative 8 may periodically require discharge structures. Discharges of dredged or fill material for O&M activities would not result in impacts to current patterns and water circulation.

*Construction (Secondary)*

There would be no secondary impacts.

## **6.2 POTENTIAL DIRECT AND SECONDARY IMPACTS ON BIOLOGICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM (SUBPART D)**

### **6.2.1 THREATENED AND ENDANGERED WILDLIFE**

*Construction (Direct & Secondary)*

#### **Aquatic Habitats and Non-navigational Dredging**

Green sea turtles are present in Long Beach Harbor and San Pedro Bay. All green turtle populations are listed as either endangered or threatened under the Endangered Species Act (ESA). However, construction activities would not result in the direct loss of habitat for sea turtles that may occur in the proposed Project Area. Construction activities under all alternatives may result in secondary impacts from noise, turbidity, and barge/equipment travel to and from construction sites within the bay, causing turtles to temporarily avoid the construction areas.

Construction is unlikely to result in impacts to marine mammals protected under the Marine Mammal Protection Act because noise levels may cause marine mammals to avoid the area within 1,900 feet of dredging and construction operations.

*Operation (Direct & Secondary)*

O&M activities for eelgrass beds and kelp beds may result in de minimis discharges of native sand for back fill associated with replanting and additional transplants. Likewise, maintenance of the sandy island under Alternative 8 may periodically require discharge of sand. Discharges of sand would increase turbidity throughout the water column.

O&M of the rocky reefs may periodically result in discharges of stone. Likewise, maintenance of the coastal wetlands under Alternative 8 may periodically require discharge structures. There would be no turbidity as these structures fall through the water column. However, a temporary increase in turbidity is expected upon impact with the benthic substrate. Impacts would resuspend both sand and fine silts into the water column. Sand is expected to quickly settle out of the water column. Fine silts would remain suspended within the water column for a longer period of time but would eventually resettle onto the seabed.

Impacts would be similar to that characterized for construction. However, the potential would be limited given the limited scope of discharges associated with O&M activities.

6.2.2 OTHER WILDLIFE

*Construction (Direct)*

**Aquatic Habitats and Non-navigational Dredging**

The proposed discharges of fill material would directly impact aquatic organisms with limited mobility such as crustaceans and mollusks through burial. However, impacts would be temporary. Because crustaceans and mollusks are relatively abundant, it is likely that such organisms would quickly recolonize affected areas. Construction would have limited impact to mobile organisms such as fish that can easily move away from the construction through startle response triggered by underwater sound.

The discharges of fill would permanently replace open water habitat with rocky substrate. However, rocky reefs, eelgrass beds, and kelp reefs would cover a small portion of the Proposed Project Area (ranging from 162.26 to 371.86 acres of the 11,465-acre Proposed Project Area). Thus, loss of water habitat would be minimal.

Non-navigation dredging would result in discharge of fallback from the dredge bucket and spillover of sediment laden overflow from the dump scow at the borrow site. There would be no impacts to aquatic habitats since fallback and spillover would not result in quantities sufficient to bury aquatic habitat or other aquatic organisms. Furthermore, since the Surfside/Sunset borrow area is sandy, discharges would be like-for-like and would not alter the sediment composition of the borrow area.

*Construction (Secondary)*

The discharges of fill would indirectly benefit aquatic species by providing namely rocky substrate that would foster establishment of marine vegetation and provide shelters.

*Operation (Direct & Secondary):*

O&M activities for eelgrass beds and kelp beds may result in de minimis discharges of native sand for back fill associated with replanting and additional transplants. Likewise, maintenance of the sandy island under Alternative 8 may periodically require discharges of sand. O&M of the rocky reefs may periodically result in discharges of stone. Likewise, maintenance of the coastal wetlands under Alternative 8 may periodically require discharge structures.

Impacts would be similar to that characterized for construction. However, the potential would be limited given the limited scope of discharges associated with O&M activities.

### **6.3 POTENTIAL DIRECT AND SECONDARY IMPACTS ON SPECIAL AQUATIC SITES (SUBPART E)**

#### **6.3.1 SANCTUARIES AND REFUGES**

*Construction (Direct & Secondary)*

There are no sanctuaries or refuges designated under state or Federal laws or local ordinances within the footprint of any of the alternatives. Therefore, no alternative would directly or secondarily impact sanctuaries or refuges.

*Operation (Direct & Secondary)*

There are no sanctuaries or refuges designated under state or Federal laws or local ordinances within the footprint of any of the action alternatives. O&M activities would not directly or secondarily impact sanctuaries or refuges.

#### **6.3.2 WETLANDS**

*Construction (Direct & Secondary)*

There are no wetlands within the footprint of any of the alternatives. Therefore, no alternative would directly or secondarily impact wetlands.

*Operation (Direct & Secondary)*

There are no wetlands within the footprint of any of the alternatives. Therefore, O&M activities would not directly or secondarily impact wetlands.

#### **6.3.3 MUDFLATS**

*Construction (Direct & Secondary)*

There are no mudflats within the footprint of any of the alternatives. Therefore, no alternative would directly or secondarily impact mudflats.

*Operation (Direct & Secondary)*

There are no mudflats within the footprint of any of the alternatives. Therefore, O&M activities would not directly or secondarily impact mudflats.

#### 6.3.4 VEGETATED SHALLOWS

##### *Construction (Direct & Secondary)*

Vegetated shallows, in the form of eelgrass beds, are located in the proposed Project Area. Impacts would be avoided by conducting pre-construction surveys and placing fill material atop areas that would not impact existing eelgrass beds to the extent feasible.

##### *Operation (Direct & Secondary)*

O&M activities would not directly or secondarily affect vegetated shallows.

#### 6.3.5 CORAL REEFS

##### *Construction (Direct & Secondary)*

There are no coral reefs within the footprint of any of the alternatives. Therefore, no alternative would directly or secondarily impact coral reefs.

##### *Operation (Direct & Secondary)*

There are no coral reefs within the footprint of any of the alternatives. Therefore, O&M activities would not directly or secondarily impact coral reefs.

#### 6.3.6 RIFFLE AND POOL COMPLEXES

##### *Construction (Direct & Secondary)*

There are no riffle and pool complexes within the footprint of any of the alternatives. Therefore, no alternative would directly or secondarily impact riffle and pool complexes.

##### *Operation (Direct & Secondary)*

There are no riffle and pool complexes within the footprint of any of the alternatives. Therefore, O&M activities would not directly or secondarily impact riffle and pool complexes.

### **6.4 POTENTIAL DIRECT AND SECONDARY EFFECTS ON HUMAN USE CHARACTERISTICS (SUBPART F)**

#### 6.4.1 MUNICIPAL AND PRIVATE WATER SUPPLIES

##### *Construction (Direct & Secondary)*

The discharge areas are located within an open ocean environment and is not a source for municipal or private water supplies. Thus, discharge of the dredged and fill material would not directly or secondarily result in impacts to municipal and private water supplies.

##### *Operation (Direct & Secondary)*

The discharge areas are located within an open ocean environment and is not a source for municipal or private water supplies. Thus, discharge of the dredged and fill material associated

with O&M activities would not directly or secondarily result in impacts to municipal and private water supplies.

#### 6.4.2 RECREATIONAL AND COMMERCIAL FISHERIES

##### *Construction (Direct & Secondary)*

Recreational fishing does occur within ESPB. However, the area does not support commercial fisheries. Short-term, minor adverse impacts to recreational fishing could occur during construction while barges, tugboats, and other equipment are operating within the proposed Project Area, causing avoidance of construction areas and equipment. The construction area in the open ocean would be limited in size. Areas outside of the construction zone would remain open for recreational fishing.

Furthermore, under Alternative 8, construction of the nearshore wetlands near Pier J would likely result in short- and long-term loss of recreational fishing within a portion of the Pier J Fishing Spot. During construction, access would be limited to the waterfront near Pier J and would be opened once construction is completed, causing short-term impacts to recreational fishing in the area. However, construction of the nearshore wetlands would result in a permanent loss of a portion of the fishing area. Thus, compared to Alternatives 2 and 4A, Alternative 8 would result in more impacts to recreational fishing.

##### *Operation (Direct & Secondary)*

Impacts would be similar to that characterized for construction. However, the potential for impacts would be limited given the limited scope of discharges associated with O&M activities.

#### 6.4.3 WATER-RELATED RECREATION

##### *Construction (Direct)*

Construction activities related to the nearshore eelgrass and associated rocky reefs may result in a short-term, localized disruption of recreational activities. Once construction activities are completed, the presence of nearshore rocky reefs may result in minor disruption of near beach activities in those immediate areas, such as swimming, wading, or surfing due to the change in elevation (from stones and eelgrass beds) in shallow areas, however, minimal changes to elevation in shallow areas are anticipated. Construction of the offshore rocky reefs and kelp reefs may also result in short-term, localized, adverse impacts to recreationists such as sailors, paddle boarders, or other recreational boaters due to the need to avoid and navigate around large equipment.

##### *Construction (Secondary)*

Eelgrass beds, along with nearshore and offshore rocky reefs, would enhance the biological productivity of ESPB and likely result in beneficial impacts due to increased interest from scuba divers in particular, possibly other recreationists such as paddle boarders and sailors. The offshore rocky reefs and kelp reefs may result in localized, adverse impacts to recreationists

such as sailors, paddle boarders, or other recreational boaters due to the need to avoid and navigate around the restoration features.

*Operation (Direct & Secondary)*

Impacts would be similar to that characterized for construction. However, the potential for impacts would be limited given the limited scope of discharges associated with O&M activities.

6.4.4 AESTHETICS

*Construction (Direct & Secondary)*

Construction equipment would be visible from the beaches, residential areas, public open space areas (such as parks and other recreation areas), nearby roadways, and watercraft within the Proposed Project Area. Residents and visitors, especially those immediately adjacent to the shoreline, would have open foreground views of the Proposed Project Area. Construction activities would introduce new and different activities and equipment and are expected to result in short-term adverse impacts to the aesthetics and visual quality of the Proposed Project Area and scenic vistas of nearby areas. Once construction is completed, all equipment would be removed, and the post-construction visual character would return to that characterized by the existing conditions.

*Operation (Direct & Secondary)*

Impacts would be similar to that characterized for construction. However, the potential for impacts would be limited given the limited scope of discharges associated with O&M activities.

6.4.5 PARKS, NATIONAL AND HISTORICAL MONUMENTS, NATIONAL SEASHORES, WILDERNESS AREAS, AND RESEARCH SITES

These preserves consist of areas designated under Federal and State laws or local ordinances to be managed for their aesthetic, educational, historical, recreational, or scientific value. 40 CFR 230.54.

There are no national and historical monuments or national seashores in the proposed Project Area.

## **7 EVALUATION AND TESTING (SUBPART G)**

All alternatives would result in discharges of sand, rock, and concrete within waters of the US. Rock and concrete would be chemically inert and would not leach contaminants into the water column. Per 40 C.F.R 230.60(a), testing is not required for rock and concrete fill. Sand from the Surfside/Sunset borrow area of San Pedro Bay would be tested per 40 C.F.R. 230.60(b). Only sand deemed suitable for discharge into the marine environment would be used for backfill on the constructed habitat.

## **8 DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM (CONSIDER REQUIREMENTS IN 40 CFR SECTION 230.11(G))**

Past discharges of fill material within ESPB are associated with construction and maintenance of shoreline or nearshore structures such as marinas, piers, wharfs, jettys, breakwaters, and navigation channels. Present and foreseeable future actions are primarily maintenance in nature: San Pedro Breakwater repair project, Middle Breakwater repair project, Long Beach Breakwater repair project. Also included are maintenance dredging of channels, turning basins, berths and other underwater navigation features at Port of Los Angeles, Port of Long Beach, Los Angeles River estuary, and Naval Weapons Station Seal Beach. Some projects would expand or reconstruct existing facilities: Alamitos Bay Marina rebuild project, Naval Weapons Station Seal Beach Harbor Expansion project, POLB Deep Draft Navigation project, and Surfside/Sunset Storm Damage Reduction project. The total acreage of these in-water structures resulting in discharges of dredged or fill material into waters of the US is relatively small compared to the larger 18 square mile area (11,465 acres) of the proposed Project Area.

### **Physical and Chemical Characteristics**

With respect to the chemical and physical characteristics of the aquatic ecosystem, it is likely that historic construction of harbors and other coastal infrastructure impacted water quality in the short term due to temporary increases in turbidity. Historic use of creosote-treated wood piles in some of these structures likely leached oils into the marine environment. Maintenance or construction of structures in the present and foreseeable future will likely result in temporary increases in turbidity. With prohibition of creosote-treated piles, present and future discharges would be concrete reinforced piles, corrosion-resistant metal piles, or rocks which are chemically inert and do not leach harmful chemicals into the marine environment.

The dominant factors affecting chemical and physical characteristics of the aquatic ecosystem are storm runoff from the Los Angeles and San Gabriel Rivers and breakwaters. A series of breakwaters constructed to protect the ports of Los Angeles and Long Beach limit wave energy, water circulation, and sediment transport within ESPB. Furthermore, inflows from the Los Angeles and San Gabriel Rivers convey pollutants associated with urban land uses into the area. These two factors, in concert with each other, contribute to poor water quality and limited circulation characteristics within ESPB.

All alternatives would result in discharges of sand, rocks, and precast concrete structures. Installation of these fill materials during construction would temporarily increase turbidity. Turbidity would be short-lived since sand tends to settle out of the water column quickly. In the long term, these fill materials would not introduce chemicals into the marine environment because they are chemically inert. The footprint of the discharges would cover a small portion of the proposed Project Area. Discharge of structural fill ranges from 162.26 to 371.86 acres of the 11,465-acre proposed Project Area. Non-navigation dredging ranges for Alternatives 2 and 4A is approximately 20 acres and 220 acres for Alternative 8. The dredged areas would be excavated to varying depths depending on the alternative. However, currents and sediment transport processes are expected to refill the excavated areas with sand over time. Thus, the

discharges would not result in notable changes to the currents. Locally, the reflected wave height produced by these the nearshore structures would be on the order of 10 percent of the incident height. However, the larger reduction in wave energy and changes in circulation because of the breakwater would remain unaltered.

### **Biological Characteristics and Special Aquatic Sites**

Past construction of shoreline or nearshore structures eliminated a variety of aquatic habitats (i.e., special aquatic sites): wetlands, vegetated shallows, mudflats, and hard substrate. The Port of Long Beach was developed on what was the Los Angeles River estuary mudflats. Rocky reef areas existed in San Pedro Bay prior to development of the ports/harbors but were disturbed or removed by dredging and/or infrastructure fill projects. Wetlands associated with the San Pedro Bay historically accounted for more than 80% of all historical wetland habitats in the southern California region. Presently, this habitat has been reduced by 93% of its historical extent. The only remaining wetlands in the larger San Pedro Bay area are the restored coastal salt marshes at the Golden Shore Marine Reserve and the Los Cerritos Wetlands along the San Gabriel River. There are no wetlands in the proposed Project Area. The remaining aquatic habitat in the Proposed Project Area are mostly open water and eelgrass or kelp in areas where rocky substrate occurs. Open water habitat in the proposed Project Area supports variety of fish, water-associated birds, sea turtles, and marine mammals.

Present and foreseeable future actions would primarily entail maintenance and reconstruction of existing structures. These activities would not change the present balance of aquatic habitats characterized above. All alternatives would replace open water/soft bottom habitat (ranging from 162.26 to 371.86 acres) with submerged habitat consisting of eelgrass, kelp, and hard rocky substrate. Additional habitat features under Alternative 8 include sandy island, oyster habitat, and coastal wetland habitat. Non-navigation dredging would temporarily disturb approximately 20 to 220 acres of sandy, soft-bottom habitat and would temporarily disturb the benthic community. However, benthic organism would quickly recolonize the affected area. However, the 18 square mile area (11,465 acres) of mostly open water habitat within the proposed Project Area, none of the alternatives would alter the existing biological resources present in the proposed Project Area.

### **Human Use Characteristics**

Construction and maintenance of shoreline or nearshore structures, such as marinas, piers, wharfs, jettys, breakwaters, and navigation channels, as well as a general increase in population, intensified human uses of the aquatic environment. Construction of wharfs, navigation channels, and breakwaters facilitated an increase in shipping to the Ports of Los Angeles and Long Beach. Marinas, piers, and residential development increased recreational uses of the aquatic environment: sailing, swimming, diving, recreational fishing. The lone exception is surfing and other wave-related activities which decreased after construction of breakwaters due to wave action attenuation. Due to the built-out nature of the ESPB shoreline, present and foreseeable future projects would entail continued maintenance, reconstruction, or minor expansion of existing facilities.

The proposed discharges under all alternatives would replace a soft bottom benthic environment with eelgrass, kelp and associated rocky reefs. Additional features under Alternative 8 include oyster habitat, sandy islands, and coastal wetland habitat. The discharges would result in minor impacts to recreational activities that require unobstructed open ocean environment such as sailing. The discharges would also expand opportunities for recreational activities such as diving for fishing. However, these localized changes in recreational opportunities would not affect the overall recreational trends in the Proposed Project Area. Addition of the habitat would enhance the aesthetics of what would otherwise be a soft bottom, open water vista.

Non-navigation dredging under all alternatives would temporarily disturb approximately 20 acres to 220 acres of sandy, soft-bottom substrate. Since the affected area would be submerged while most water recreation takes place atop the water, recreation would not be affected.

The dominant economic element within the proposed Project Area includes the Port of Long Beach and the associated shipping lanes and anchorages as well as oil/gas production. Other notable economic values include marinas offering charter boat trips for a variety of recreational activities such as fishing, diving, or whale watching. The discharges under all alternatives would not affect these economic elements because the restoration features would be located to avoid chartered shipping lanes. It is possible for vessels operating outside of recognized shipping lanes to traverse across the canopy of kelp beds. However, all restoration features would be chartered to minimize impacts to navigation.

Based on the above, the incremental contribution of the proposed discharges to the cumulative effects of the aquatic ecosystem would be minimal.

## **9 MEASURES TO MINIMIZE ADVERSE IMPACTS (SUBPART H)**

Environmental commitments that would be implemented to avoid and minimize impacts to the aquatic environment are listed in Appendix G-1.

## **10 COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES (SUBPART J)**

All alternatives would result in the permanent discharges of sand, rock, and concrete within waters of the US. The discharges of fill material would temporarily increase turbidity during initial placement of the fill material. However, turbidity levels would return to pre-project levels soon after discharge has occurred. The discharges would permanently replace open water habitat within waters of the US with hard substrates or a matrix of rock and sand. The restoration features include rocky reefs, eelgrass beds, and kelp reefs. Additional features under Alternative 8 include sandy island, oyster habitat, coastal wetland habitat. In total, these features would cover a small portion of the proposed Project Area (ranging from 162.26 to 371.86 acres of the 11,465-acre proposed Project Area). Thus, most open water habitat within the proposed Project Area would remain unaffected. Furthermore, there would be no permanent loss of waters of the US.

However, the proposed discharges would aid in the restoration and support of complex aquatic habitats such as kelp, rocky reef, coastal wetlands, and other types historically present in San Pedro Bay of sufficient quality and quantity, depending on the alternative, to support diverse resident and migratory species. The expected benefits are:

- Increase the extent (total area) of complex aquatic habitats within the Proposed Project Area.
- Increase the diversity and spatial heterogeneity of complex aquatic habitat types within the Proposed Project Area.
- Increase the overall connectivity of complex aquatic habitat types within the Proposed Project Area by restoring habitat areas in a way to facilitate the movement of species between habitat nodes to support and enhance existing food webs.

Based on the above, the proposed discharges would restore historical functions and services of waters of the US and aid in the restoration of others. Thus, compensatory mitigation is not proposed.

## 11 FINDINGS

Alternative 4A is the Recommended Plan. The discharges associated with Alternative 4A complies with the Guidelines pursuant to 40 C.F.R. § 230.12. The determination of compliance is based on the following findings:

### 11.1 THERE ARE NO AVAILABLE, PRACTICABLE ALTERNATIVES HAVING LESS ADVERSE IMPACT ON THE AQUATIC ECOSYSTEM AND WITHOUT OTHER SIGNIFICANT ADVERSE ENVIRONMENTAL CONSEQUENCES THAT DO NOT INVOLVE DISCHARGE INTO WATERS OF THE UNITED STATES.

Alternative 4A is the only alternative that is practicable with respect to costs. Thus, it is the least environmentally damaging practicable alternative (LEDPA).

### 11.2 THE DISCHARGE WILL NOT VIOLATE STATE WATER QUALITY STANDARDS.

The Los Angeles Regional Water Quality Control Board's Basin Plan refers to the California State Water Resources Control Board's 2015 Ocean Plan (Ocean Plan) for ocean water quality standards. The applicable water quality standards from the Ocean Plan are:

- Bacteria: The Ocean Plan dictates concentration for two types of bacteria – coliform and enterococcus. These bacteria are associated with storm runoff from developed upland areas and sewage outfalls. *Sand and rock do not harbor bacteria and are not a source of bacteria.*
- Physical Characteristics: Discharge shall not (1) result in visible floating particulates, grease, and oil; (2) cause aesthetically undesirable discoloration of the ocean surface; (3) significantly reduce natural light outside the initial dilution zone; (4) change sediments that would degrade benthic communities. *The proposed discharges of sand and rock would not result in discharges of oil, discoloration, reduce natural light, or degrade benthic communities. Sand and rock are natural materials while concrete is*

*chemically inert, free of oils. Sand dredged from Surfside/Sunset borrow area and redischarged into the aquatic environment would be tested per 40 C.F.R. 230.60(b). Testing results would be reviewed by the Southern California Dredged Materials Management Team, a regional consortium of regulatory agencies. Only sand deemed to be suitable for discharge by the consortium, would be discharged into the aquatic environment. The restoration features would attract marine life and would benefit benthic communities.*

- *Chemical Characteristics: The Ocean Plan allows for discharges that would result in limited releases of heavy metals, non-carcinogenic organic compounds, and carcinogens. Allowed concentration of each chemical are listed in Table 1 of the Ocean Plan. Sand and rock are natural materials. Sand dredged from Surfside/Sunset borrow area and redischarged into the aquatic environment would be tested per 40 C.F.R. 230.60(b). Testing results would be reviewed by the Southern California Dredged Materials Management Team, a regional consortium of regulatory agencies. Only sand deemed to be suitable for discharge by the consortium, would be discharged into the aquatic environment. These fill materials would not result in discharges of heavy metals and organic chemicals specified in the Ocean Plan.*

Based on the above and with implementation of Environmental Commitments WQ-1 thru WQ-5 listed in Appendix G-1, discharge will not violate state water quality standards.

### **11.3 THE DISCHARGE WILL NOT VIOLATE TOXIC EFFLUENT STANDARDS.**

Construction would result in discharges of dredged sand deemed suitable for discharge into the marine environment and rocks. The rocks would be chemically inert and would not leach chemicals into the aquatic environment. Sand from the Surfside/Sunset area of San Pedro Bay would be tested per 40 C.F.R. 230.60(b). Testing results would be reviewed by the Southern California Dredged Materials Management Team, a regional consortium of regulatory agencies. Only sand deemed to be suitable for discharge by the consortium, would be discharged into the aquatic environment. Furthermore, measures to avoid and minimize impacts to water quality would be implemented during construction. Thus, the discharges would not violate toxic effluent standards.

### **11.4 THE DISCHARGE WILL NOT JEOPARDIZE ENDANGERED OR THREATENED SPECIES OR THEIR CRITICAL HABITAT.**

Green sea turtles are present in the proposed Project Area. All green turtle populations are listed as either endangered or threatened under the Endangered Species Act. Construction activities would not result in the direct loss of habitat for sea turtles that may occur within the proposed Project Area. Construction activities under Alternative 4A result in secondary impacts from noise, turbidity, and barge/equipment travel to and from construction sites within the bay, causing turtles to temporarily avoid the construction areas. Implementation of Environmental Commitments in Appendix G-1 would further avoid and minimize potential impacts. Proposed habitat restoration features under Alternative 4A would result in long-term

beneficial impacts to green sea turtles by creation of 25 acres of new eelgrass habitat (forage habitat). The Recommended Plan would not affect any other Federally listed species. On May 1, 2020, the NMFS concurred with the “May Affect, Not Likely to Adversely Affect” determination for green sea turtles which concluded informal consultation on the project (Appendix H). Based on the above, the discharges will not jeopardize endangered or threatened species or their critical habitat.

**11.5 THE DISCHARGE WILL NOT VIOLATE STANDARDS SET BY THE DEPARTMENT OF COMMERCE TO PROTECT MARINE SANCTUARIES.**

No sanctuaries as designated by the Marine Protection, Research and Sanctuaries Act of 1972 occur within the proposed Project Area; therefore, none will be affected by implementation of Alternative 4A.

**11.6 THE PROPOSED DISCHARGE MATERIAL WILL MEET TESTING EXCLUSION CRITERIA.**

Alternative 4A would result in discharges of sand and rock within waters of the US. Per 40 C.F.R. 230.60(a), testing is not required for rock because it is a naturally occurring inert material.

Sand from the Surfside/Sunset borrow area of San Pedro Bay would be tested per 40 C.F.R. 230.60(b). Testing results would be reviewed by the Southern California Dredged Materials Management Team, a regional consortium of regulatory agencies. Only sand deemed to be suitable for discharge by the consortium, would be discharged into the aquatic environment.

**11.7 THE DISCHARGE WILL NOT CONTRIBUTE TO SIGNIFICANT DEGRADATION OF WATERS OF THE UNITED STATES THROUGH ADVERSE IMPACTS TO HUMAN HEALTH OR WELFARE, THROUGH POLLUTION OF MUNICIPAL WATER SUPPLIES, FISH, SHELLFISH, WILDLIFE AND SPECIAL AQUATIC SITES.**

Construction would result in discharges of dredged sand deemed suitable for discharge into the marine environment and rocks. The rock would be chemically inert and would not leach chemicals into the aquatic environment. Sand from the Surfside/Sunset area of San Pedro Bay would be tested per 40 C.F.R. 230.60(b). Only sand deemed suitable for discharge into the marine environment would be used for backfill on the constructed habitat. Thus, there would be no adverse impacts to human health or welfare through pollution of wildlife and special aquatic sites.

Waters in the proposed Project Area are not a source for water supply.

**11.8 THE DISCHARGE WILL NOT CONTRIBUTE TO SIGNIFICANT DEGRADATION OF WATERS OF THE UNITED STATES THROUGH ADVERSE IMPACTS TO DIVERSITY, PRODUCTIVITY, AND STABILITY OF THE AQUATIC ECOSYSTEM, SUCH AS THE LOSS OF FISH OR WILDLIFE HABITAT, OR LOSS OF THE CAPACITY OF WETLAND TO ASSIMILATE NUTRIENTS, PURIFY WATER OR REDUCE WAVE ENERGY.**

Alternative 4A would add approximately 200 acres of submerged nearshore habitat consisting of eelgrass, kelp, and hard rocky substrate. Submerged marine vegetation functions as a nursery ground for many fishes and invertebrates and provides foraging areas and shelter for

fish. The vegetation and rock matrix helps stabilize sediment. The discharges would add to the diversity, productivity, and stability of the aquatic system. The Surfside/Sunset borrow area where non-navigation dredging would occur is an open ocean environment. There are no submerged rocky reefs or marine vegetation at the location. Thus, discharges of sand during dredging operations would not degrade the benthic environment.

**11.9 THE DISCHARGE WILL NOT CONTRIBUTE TO SIGNIFICANT DEGRADATION OF WATERS OF THE UNITED STATES THROUGH ADVERSE IMPACTS TO RECREATIONAL, AESTHETIC, AND ECONOMIC VALUES.**

The dominant economic element within the proposed Project Area includes the Port of Long Beach, the associated shipping lanes and anchorages, oil/gas production. Other notable economic values include marinas offering charter boat trips for a variety of recreational activities such as fishing, diving, or whale watching. The discharges would not affect these economic elements because the restoration features would be away from all charted commercial navigation routes. Furthermore, the restoration features would also be plotted on official navigation charts. This would avoid and minimize impacts to commercial and recreational navigation.

Addition of approximately 200 acres of submerged habitat consisting of eelgrass, kelp, and hard rocky substrate would expand recreational diving or fishing. Addition of the habitat would enhance the aesthetics of what would otherwise be a soft bottom, open water vista.

**11.10 THE DISCHARGE INCLUDES ALL APPROPRIATE AND PRACTICABLE MEASURES (40 C.F.R. §§ 230.70-77) TO MINIMIZE THE POTENTIAL HARM TO THE AQUATIC ECOSYSTEM.**

Appropriate and practicable measures identified in Appendix G-1 would be implemented.

On the Basis of the Guidelines, the Proposed Disposal Site(s) for the Discharge of Dredged or Fill Material is:

- ( ) (1) Specified as complying with the requirements of these guidelines; or,
- (x) (2) Specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem; or,
- ( ) (3) Specified as failing to comply with the requirements of these guidelines. The required 404(r) statements are included in the Integrated Report.

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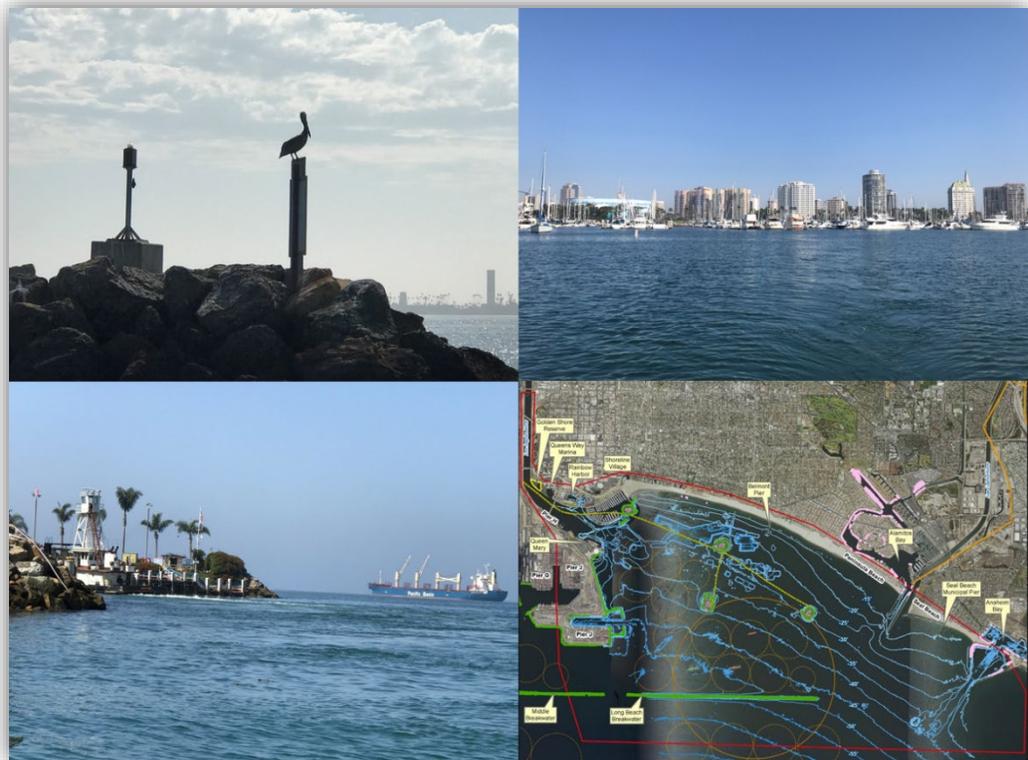
# FINAL INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT (EIS/EIR)

## APPENDIX G-1: LIST OF AVOIDANCE AND MINIMIZATION MEASURES

EAST SAN PEDRO BAY  
ECOSYSTEM RESTORATION STUDY  
Long Beach, California

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January 2022



US Army Corps  
of Engineers®



## Appendix G-1

### List of Avoidance and Minimization Measures

**GEO-2** The Corps (and the non-Federal Sponsor, the City of Long Beach) will beneficially reuse dredge material from other navigation projects to the maximum extent practicable. The possibility of utilizing dredged material from other navigation projects (*e.g.*, the Port of Long Beach Deep Draft Navigation Project) will be evaluated during the pre-construction engineering and design (PED) phase and a decision made based on sediment quality and the timing of construction for any such projects. No specific projects have been identified that match construction timing and include results from sediment analyses that show compatibility of dredged sediments to ESPB requirements. If beneficial use sites become available, the Corps would consider a supplemental analysis.

**GEO-4** Prior to construction, the USACE will perform sediment sampling and analysis to confirm the suitability of dredged material from the Surfside/Sunset borrow area for the establishment of eelgrass beds leeward of the proposed nearshore rocky reefs.

**INV-1** Pursuant to the *Caulerpa* Control Protocol established by NMFS and California Department of Fish and Wildlife (CDFW), prior to construction activities that would be expected to disturb *Caulerpa* spp. should it exist within the proposed Project Area, a surveillance level survey of the Area of Potential Effects (APE) will be performed. In *Caulerpa*-free habitats, this requires 20 percent of the APE to be surveyed for the presence of *Caulerpa* spp.. In the event *Caulerpa* spp. are found, disturbing activities would be delayed until the infestation is isolated, treated, or the risk of spread is eliminated, and sightings would be reported immediately to CDFW and NMFS. Construction shall not begin until cleared to do so by the NMFS.

**MH-1** A pre-construction survey would be performed to document eelgrass extent in the areas of nearshore reef placement. If eelgrass is present or was previously present at a site according to Merkel et al. (2017), alternative locations of rocky reef and sand placement a minimum distance of 50 feet beyond the margin of existing and previously existing eelgrass habitat will be established during the detailed design phase as well as during construction to avoid impacts to all existing or previously existing eelgrass habitat. Per the NMFS's California Eelgrass Mitigation Plan (NMFS, 2014), eelgrass is defined "...as areas of vegetated eelgrass cover (any eelgrass within 1 m<sup>2</sup> quadrat and within 1 m of another shoot) bounded by a 5 m wide perimeter of unvegetated area. Unvegetated areas may have eelgrass shoots a distance greater than 1 m from another shoot and may be internal as well as external to areas of vegetated cover."

**MH-2** During the creation of eelgrass habitats, no more than 10 percent of the plants from eelgrass donor beds would be harvested to minimize potential impacts to existing eelgrass beds.

**PH-1** Coordination between the Corps and the City of Long Beach would occur to ensure that recreational and commercial users within the project area are aware of construction equipment

at the start and termination of activities to minimize any potential hazards related to construction equipment and activities.

**PH-2** Publication of advance notice in the USGS Notice to Mariners as another form of public information resulting in enhanced recreation as well as safety notification.

**PH-3** All Federal, State, and local regulations regarding the use, transport, and disposal of hazardous materials would be adhered to during construction activities. Human health and safety impacts would be avoided through adherence to these procedures, conditions, and regulations.

**SP-1** Potential adverse impacts to existing marine habitats would be minimized by selection of dredging equipment and methods, turbidity control measures for dredging and disposal operations, and monitoring protocols outlined in the Los Angeles Contaminated Sediments Task Force Long-Term Management Strategy (2005) and the Los Angeles Regional Dredged Material Management Plan (2009).

**SP-2** An Environmental Protection Plan would be implemented, including a Green Sea Turtle Monitoring and Avoidance Plan, Marine Mammal Monitoring and Avoidance Plan, and employee training. Monitoring plans shall be prepared by a qualified marine biologist. The plans would include the following:

- Procedures for monitoring marine mammals and sea turtles, and specifications for Marine Wildlife Observers.
- Methods for communicating with contractors to stop work if there is a risk that any marine mammals or sea turtles active in the area may move closer to construction sites.
- Procedures for Marine Wildlife Observer monitoring of barge transport, if necessary.
- Contractor personnel training
- Reporting procedures including in the event of potential take
- Methods for communicating with ship captains if there is a risk of collision with a marine mammal or sea turtle.

**SP-3** The following measures will be implemented to avoid or minimize impacts to the Federally threatened East Pacific distinct population segment (DPS) of Green Sea Turtle and marine mammals protected under the Marine Mammal Protection Act.

- The Corps will utilize a clamshell dredge for all dredging associated with the East San Pedro Bay Ecosystem Restoration Project (Project) because this type of equipment has been determined to be well suited based on the quantity and the location of the work.
- Dredging is expected to occur on a 24-hour per day basis. The Corps will attempt to sequence dredging activities during winter months (November – March 31) when Green Sea Turtles (*Chelonia mydas*) (GST) are generally expected to be located within the warm waters of the San Gabriel River adjacent to and downstream of power plants (Crear *et al.*, 2016). However, due to the exposure of the work area to open ocean wave conditions, adverse wave and inclement weather may preclude safe working conditions

during winter months, necessitating that dredging activities extend into the non-winter months.

- When dredging and nearshore placement operations occur, a qualified biologist with experience monitoring GSTs and marine mammals will be on site to monitor for the presence of GSTs and marine mammals. The monitor will have the authority to cease or alter operations to avoid impacts to GSTs and marine mammals.
- Adequate lighting will be provided during nighttime operations to allow the monitor to observe the surrounding area effectively.
- During dredging and placement operations, the Corps will designate 30-meter monitoring zones around both the dredge site and nearshore placement sites.
- All vessels associated with the project will not exceed eight (8) knots inside the breakwater.
- Daily visual monitoring within the designated 30-meter monitoring zones will commence prior to the start of in-water construction activities and after each construction work break of more than 30 minutes.
- If a GST is observed within the vicinity of the project site during project operations, all appropriate precautions shall be implemented to avoid or minimize unintended impacts. These precautions include, but are not limited to:
  - o Cessation of operation of any moving equipment that is observed within 30 meters of a GST.
  - o Immediate cessation of operation of any mechanical dredging equipment if a GST is observed within 30 meters of the equipment.
  - o Operations may not resume until the GST has departed the monitoring zone by its own accord or has not been observed for a 15-minute period of time.
- Biological monitors will maintain a written log of all GST and marine mammal observations during project operations. This observation log will be provided to the Corps and NMFS as an attachment to the post-construction report for the project. Each observation log will contain the following information:
  1. Observer name and title;
  2. Type of construction activity (maintenance dredging, etc.);
  3. Date and time animal first observed (for each observation);
  4. Date and time observation ended (for each observation). An observation will terminate if (1) an animal is observed exiting the monitoring zone or (2) after a 15-minute period of no observation (assumption is that animal has exited, but was not observed to do so);
  5. Location of monitor (latitude/longitude), direction of animal in relation to the monitor, and estimated distance (in meters) of animal to the monitor;
  6. Nature and duration of equipment shutdown.
- Any observations involving the potential “take” of GSTs or marine mammals will be reported to the Corps within 10 minutes of the incident and to the NMFS stranding coordinator immediately.

*East San Pedro Bay Ecosystem Restoration Study – Appendix G-1 – List of Avoidance and Minimization Measures*

- The Corps and its contractors will inform all personnel associated with the construction work of the potential presence of GSTs and marine mammals and the requirement to monitor a 30-meter designated monitoring zone around all in-water equipment and vessels to avoid interactions with, or “take” of GSTs and marine mammals. Prior to the commencement of on-site construction work, all contractor personnel (including sub-contractor personnel) will be trained by a Corps biologist (or qualified biologist approved by the Corps) on GST and marine mammal identification and observation protocols to be followed in the event that GSTs or marine mammals are sighted. All construction personnel are responsible for observing and reporting the presence of GSTs and marine mammals during all water-related construction activities.
- The contractor will implement an Environmental Protection Plan that will include a GST and Marine Mammal Monitoring and Avoidance Plan and an employee training program on GST and marine mammal observation protocols, avoidance, and minimization measures.

**UT-2** Mapping of underwater utilities would be used to plan the location of rocky reefs to avoid utilities and pipelines.

**WQ-1** Water quality monitoring will be conducted during dredging or any activities that would result in turbidity plumes. Monitoring parameters will include percent light transmissivity, dissolved oxygen, water temperature, salinity, and pH.

**WQ-2** For dredging activities, standard water quality monitoring would be conducted during construction. This consists of weekly monitoring of water quality parameters (salinity, pH, dissolved oxygen, temperature, and percent light transmissivity) with an instrument package at four stations. The four stations are sited relative to the dredge and will be 100 feet upcurrent of the dredge, 100 feet downcurrent of the dredge, 300 feet downcurrent of the dredge, and a control station located outside of any dredge plume. Twice monthly water samples will be taken from the station 300 feet downcurrent of the dredge for analysis of total suspended solids and TRPH. Similar monitoring would be conducted at the sandy island site during sediment placement activities at that location.

**WQ-3** Corps Engineering Manual EM-1110-2-2302 provides minimal stone quality requirements. Guidance from this manual will be followed. Quarry materials will also meet the following:

- The materials shall be clean and free of any contaminants, especially those that could dissolve in seawater (e.g., asphalt, paint, oil, or oil stains).
- All stone used for the project must follow:
  - Purity: The materials shall be free of contamination and foreign materials.
  - Specific gravity: Shall be greater than 2.2.
  - Durability: Rocks used must remain unchanged after 30 years of submersion in seawater.

*East San Pedro Bay Ecosystem Restoration Study – Appendix G-1 – List of Avoidance and Minimization Measures*

**WQ-4** During construction and operation activities, all local, state and Federal regulations would be complied with regarding to the transportation, handling, and storage of hazardous substances.

**WQ-5** At each work area involving the operation of heavy equipment and handling and storage of hazardous substances, a Hazardous Material Spill Prevention Plan would be prepared. The Hazardous Material Spill Prevention Plan shall contain contingency plans in the event of an accidental release into the environment.

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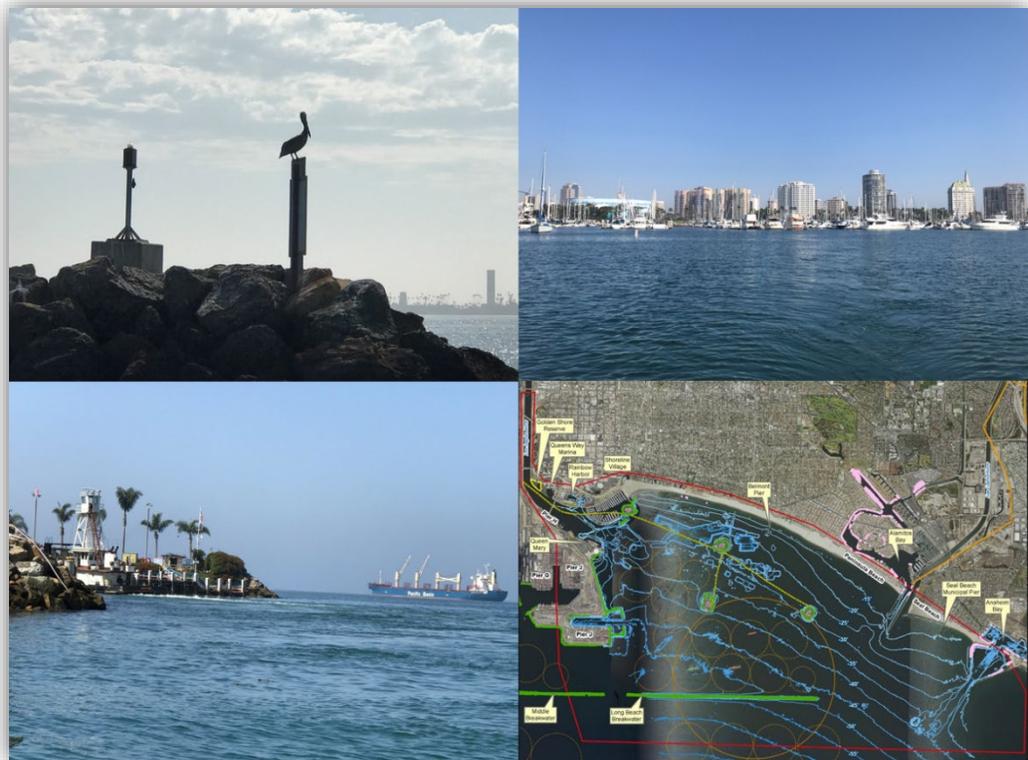
# FINAL INTEGRATED FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT (EIS/EIR)

## APPENDIX G-2: 401 LETTERS

### EAST SAN PEDRO BAY ECOSYSTEM RESTORATION STUDY Long Beach, California

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January 2022



US Army Corps  
of Engineers®





DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT  
915 WILSHIRE BOULEVARD, SUITE 930  
LOS ANGELES, CALIFORNIA 90017-3489

November 22, 2019

Ms. Emily Duncan  
Los Angeles Regional Water Quality Control Board  
320 West 4<sup>th</sup> Street, Suite 200  
Los Angeles, California 90013

Dear Ms. Duncan:

The U.S. Army Corps of Engineers (Corps) has completed a Draft Integrated Feasibility Report (IFR) which includes an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the East San Pedro Bay Ecosystem Restoration Feasibility Study. The Proposed Project Area is in the eastern portion of San Pedro Bay, offshore from the City of Long Beach, California. This 18 square mile area includes the Long Beach shoreline, the Los Angeles River estuary, the Middle Breakwater, the Long Beach Breakwater, Alamitos Bay Jetties, and open water between these features. The Corps' Los Angeles District is the lead Federal Agency and the City of Long Beach is the lead Local Agency for this study. The Draft IFR presents the plan formulation undertaken to develop feasible alternatives and also assesses the potential environmental impacts associated with implementation of the proposed project alternatives.

The purpose of the study is to restore and improve aquatic ecosystem structure and function and to provide for increased habitat biodiversity and ecosystem value. The planning objective is to restore and support the sustained functioning of imperiled habitats such as kelp, rocky reef, eelgrass, and other types historically present in San Pedro Bay in order to support diverse resident and migratory species. The Tentatively Selected Plan (TSP) with the proposed measures are presented in full in Chapter 6 of the Draft IFR. Refer to Chapter 4 of the Draft IFR for descriptions of the measures and alternatives considered during the plan formulation process. Environmental impacts and benefits of the TSP and alternatives are evaluated in Chapter 5 of the Draft IFR.

The Draft IFR is available for public review from November 29, 2019 through January 27, 2020 and may be downloaded as a PDF from the following location:

<https://www.spl.usace.army.mil/Missions/Civil-Works/Projects-Studies/East-San-Pedro-Bay-Ecosystem-Restoration-Study/>

The proposed project will utilize approximately 1,000,000 tons of stone from a quarry source such as Pebbly Beach Quarry (Catalina Island). Of this amount approximately 640,000 tons of stone would be used to construct rocky reef habitat in the open water Chaffee Island, 60,000 tons of rock would be used to construct kelp reef near the existing breakwater, and 300,000 tons of rock would be used to construct nearshore rocky reefs. Approximately 100,000 cubic yards of dredged material from the Surfside/Sunset Borrow Area would be placed in the lee of the nearshore rocky reefs. Construction is anticipated to start in 2027 and take approximately three years to complete.

This letter, the enclosed 401 Water Quality Certification (WQC) and Waste Discharge Requirements (WDRs) application, and the Draft IFR constitute the Corps' WQC application package for this project. The Corps has determined that the proposed project complies with the water quality goals and objectives of the State of California. Project construction is not anticipated to begin until approximately 2027 subsequent to authorization by Congress. Prior to construction, The Corps will conduct sediment sampling and analysis program to confirm the suitability of dredged material from Surfside/Sunset Borrow Area for construction of rocky reef at the project site. Results of the program will be shared with the Water Board staff. If the Corps determines that the project has changed or has new or different effects on water resources, the Corps will, as provided for the Section 401 WQC regulations, develop and submit a supplemental WQC application to the Water Board. This includes any changes to preliminary suitability determination that all sediments are suitable for the proposed placement/disposal sites

Two identical public meetings will be held on Monday, December 9, 2019, at the Aquarium of the Pacific located at 100 Aquarium Way, Long Beach, California 90802, in the Ocean Theatre. The first meeting will be from 3 p.m. – 5 p.m. The second meeting will be from 6 p.m. – 8 p.m. A map and directions to be Aquarium of the Pacific are enclosed. Parking validation will be available to meeting attendees.

Enclosed for your review and comment are three (3) CDs of the Draft IFR.

Please review and submit your comments no later than January 27, 2020. Correspondence may be sent either by email to [ESPB@usace.army.mil](mailto:ESPB@usace.army.mil) or to:

Mr. Eduardo T. De Mesa  
Chief, Planning Division  
U.S. Army Corps of Engineers, Los Angeles District  
915 Wilshire Boulevard, Suite 930  
ATTN: Mr. Naeem A. Siddiqui  
Los Angeles, California 90017-3489

If you have any questions regarding the project, please contact Mr. Naeem A. Siddiqui, Project Environmental Coordinator, at (213) 452-3852 and EMAIL: [ESPB@usace.army.mil](mailto:ESPB@usace.army.mil).

Thank you for your attention to this document.

Sincerely,

A handwritten signature in black ink, appearing to be 'E. De Mesa', with a long horizontal stroke extending to the right.

Eduardo T. De Mesa  
Chief, Planning Division

Enclosure(s)



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## Los Angeles Regional Water Quality Control Board

June 1, 2021

Eduardo T. De Mesa  
Chief Planning Division  
U.S. Army Corps of Engineers, Los Angeles District  
915 Wilshire Boulevard, Suite 930  
Los Angeles, CA 90017-3489

### **REQUEST FOR CLEAN WATER ACT SECTION 401 PRE-APPLICATION REVIEW OF PROPOSED EAST SAN PEDRO BAY ECOSYSTEM RESTORATION PROJECT**

Dear Mr. De Mesa:

The Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) is in receipt of your Clean Water Act section 401 Water Quality Certification (Water Quality Certification) application dated November 22, 2019 for the Port of Long Beach East San Pedro Bay Ecosystem Restoration Project located in Los Angeles County, California.

Based on review of the November 22, 2019 application, the Environmental Impact Statement and the Draft Integrated Feasibility Report (IFR) for the Project, and contingent on a complete application for Water Quality Certification for the Project, I anticipate that the Los Angeles Water Board will issue a Water Quality Certification for the Project. The Los Angeles Water Board recognizes the ecological value of additional eelgrass, kelp and rocky habitats.

The US Army Corps of Engineer's proposed project is anticipated to begin in 2027. The project will use approximately 1,000,000 tons of stone from a quarry source such as Pebbly Beach Quarry on Catalina Island to restore and construct eelgrass, kelp, and rocky reef habitat. Approximately 640,000 tons of stone would be used to construct rocky reef habitat in the open water near Chaffee Island, 60,000 tons of rock would be used to construct kelp reef near the existing breakwater, and 300,000 tons of rock would be used to construct nearshore rocky reefs. Approximately 100,000 cubic yards of sediment will be dredged by a mechanical or hydraulic dredge within the Surfside/Sunset Borrow Area and would be placed in the lee of the nearshore rocky reefs using a split-haul scow to bottom dump the material in a zone with depths ranging from 10-25 ft Mean Lower Low Water (MLLW).

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LAWRENCE YEE, CHAIR | RENEE PURDY, EXECUTIVE OFFICER

Any Water Quality Certification issued will require Best Management Practices (BMPs) for the protection of water quality. However, I anticipate that because this Project's proposed impacts to Waters of the State and United States are temporary, and because this is a restoration project, requirements will not be included in the Water Quality Certification beyond the water quality BMPs usually required of such projects.

The Los Angeles Water Board looks forward to receiving an updated and complete application for Water Quality Certification for the Project and to working with you to determine the appropriate and effective BMPs to protect water quality during the Project. We also look forward to receiving additional documents and analysis as the project moves forward.

Please contact Emily Duncan at [Emily.Duncan@waterboards.ca.gov](mailto:Emily.Duncan@waterboards.ca.gov) or Dr. Céline Gallon, Senior Environmental Scientist, at [Celine.Gallon@waterboards.ca.gov](mailto:Celine.Gallon@waterboards.ca.gov) if you have questions or require additional information.

Sincerely,

**R Purdy**  Digitally signed by R Purdy  
Date: 2021.05.29 15:11:48  
Water 15:07:00

Renee Purdy  
Executive Officer