

# Environmental Impact Report / Environmental Impact Statement for the **San Elijo Lagoon Restoration Project**

**Final  
SCH# 2011111013**



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San Elijo Lagoon  
**RESTORATION**  
Reviving Your Wetlands



**Volume 4 of 4  
Appendices O-R**

February 2016





**Environmental Impact Report/Environmental Impact Statement  
for the  
San Elijo Lagoon Restoration Project  
Volume 4 of 4**

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**DRAFT 404(b)(1) ALTERNATIVES ANALYSIS**



**Draft 404(b)(1) Alternatives Analysis  
for the  
San Elijo Lagoon Restoration Project**

February 2016

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## ACRONYMS AND ABBREVIATIONS

AA	assessment area
BMP	best management practice
BSA	biological study area
Caltrans	California Department of Transportation
CBF	cobble blocking feature
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
CWN	Carlsbad Watershed Network
cy	cubic yards
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERL	Effects Range – Low
ERM	Effects Range – Median
Guidelines	Section 404(b)(1) Guidelines
HAPC	Habitat Area of Particular Concern
I-5	Interstate 5
LEDPA	Least Environmentally Damaging Practicable Alternative
LOSSAN	Los Angeles to San Diego Proposed Rail Corridor Improvements
M&N	Moffatt & Nichol
mcy	million cubic yards
mg/L	milligrams per liter
MHCP	Multiple Habitat Conservation Plan
MHTL	mean high tide line
MLPA	Marine Life Protection Act
MOA	Memorandum of Agreement
MPA	marine protected area
MSCP	Multiple Species Conservation Program
NCTD	North County Transit District

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NGVD	National Geodetic Vertical Datum
NRCS	Natural Resources Conservation Service
OHWM	ordinary high water mark
PCE	primary constituent element
ppt	parts per thousand
Reserve	San Elijo Lagoon Ecological Reserve
RWQCB	Regional Water Quality Control Board
SELRP	San Elijo Lagoon Restoration Project
SMCA	State Marine Conservation Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TSS	total suspended solids
U.S.	United States
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WQO	water quality objective



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# **DRAFT 404(B)(1) ALTERNATIVES ANALYSIS FOR THE SAN ELIJO LAGOON RESTORATION PROJECT**

## **1.0 INTRODUCTION**

### **1.1 REGULATORY SETTING**

Any activity requiring a Standard Individual Permit under Section 404 of the Clean Water Act (CWA) must undergo an analysis of alternatives to identify the Least Environmental Damaging Practicable Alternative (LEDPA) pursuant to the Section 404(b)(1) Guidelines (Guidelines) established by the United States (U.S.) Environmental Protection Agency (EPA). The Guidelines prohibit discharge of dredge or fill material into waters of the U.S. if there is a “practicable alternative to the proposed discharge that would have less impact on the aquatic ecosystem, provided that the alternative does not have other significant environmental consequences” (40 Code of Federal Regulations [CFR] 230.10(a)). An alternative is practicable “if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes” (40 CFR 230.10(a), 230.3(q)). “If it is otherwise a practicable alternative, an area not presently *owned* by an Applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered” (40 CFR 230.10(a)(2)).

If the proposed activity would involve a discharge into a special aquatic site, such as a wetland, the Guidelines distinguish between those projects that are water dependent and those that are not. A water-dependent project is one that requires access to, proximity to, or siting within, a special aquatic site to achieve its basic purpose, such as a marina. A non-water-dependent project is one that does not have such requirements to achieve its basic purpose.

The Guidelines establish two rebuttable presumptions for non-water-dependent projects that propose a discharge of fill into a special aquatic site, such as wetlands. First, it is presumed that there are practicable alternatives to non-water-dependent projects, “unless clearly demonstrated otherwise” [40 CFR § 230.10(a)(3)]. Second, “where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.” [Id.] The thrust of the Guidelines is that applicants should design proposed projects to meet the overall project purpose while avoiding and minimizing impacts to aquatic environments. This approach is emphasized in a *Memorandum of Agreement between the EPA and the U.S. Army Corps of Engineers Concerning*

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*the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines* (1990) (“MOA”) as modified by the Corps and EPA Final Mitigation Rule (33 CFR Parts 325 and 332 and 40 CFR Part 230). The MOA articulates the Guidelines “sequencing” protocol as first, avoiding impacts; second, minimizing impacts; and third, providing practicable compensatory mitigation for unavoidable impacts and no overall net loss of functions and services.

In addition to requiring the identification of the LEDPA, the Guidelines mandate that no discharge of dredged and/or fill material shall be permitted if it causes or contributes to violations of any applicable State water quality standard [40 CFR 230.10(b)(1)], violates any applicable toxic effluent standard or prohibition [40 CFR § 230.10(b)(2)], jeopardizes the continued existence of any endangered or threatened species (or destroys or adversely modifies critical habitat) [40 CFR § 230.10(b)(3)], or causes or contributes to significant degradation of waters of the U.S. [40 CFR § 230.10(c)].

The Department of the Army permit application for the San Elijo Lagoon Restoration Project (SELRP), which included Alternative 2A from the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) as the proposed project, was submitted on May 29, 2012. The applicant’s Preferred Alternative is identified as Alternative 1B – Refined in the Preface to the Final EIR/EIS (33 CFR 320.1).

## **1.2 PROJECT PURPOSE**

**Basic Project Purpose** – The basic project purpose comprises the fundamental, essential, or irreducible purpose of the project and is used by the Corps to determine whether the Applicant’s project is water dependent. The basic project purpose of the SELRP is aquatic habitat restoration. The basic project purpose is water dependent; therefore, the rebuttable presumptions established in 40 CFR 230.10(a)(3) do not apply to this analysis.

**Overall Project Purpose** – The overall project purpose for the SELRP 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 applicant’s goals for the project. The overall project purpose allows for a reasonable range of alternatives to be analyzed. The overall project purpose is to enhance and restore the physical and biological functions and services of San Elijo Lagoon by increasing hydraulic efficiency in the lagoon, addressing existing water quality impairments, and halting ongoing conversion of unvegetated wetland habitats to support a more connected gradient of balanced habitat types.

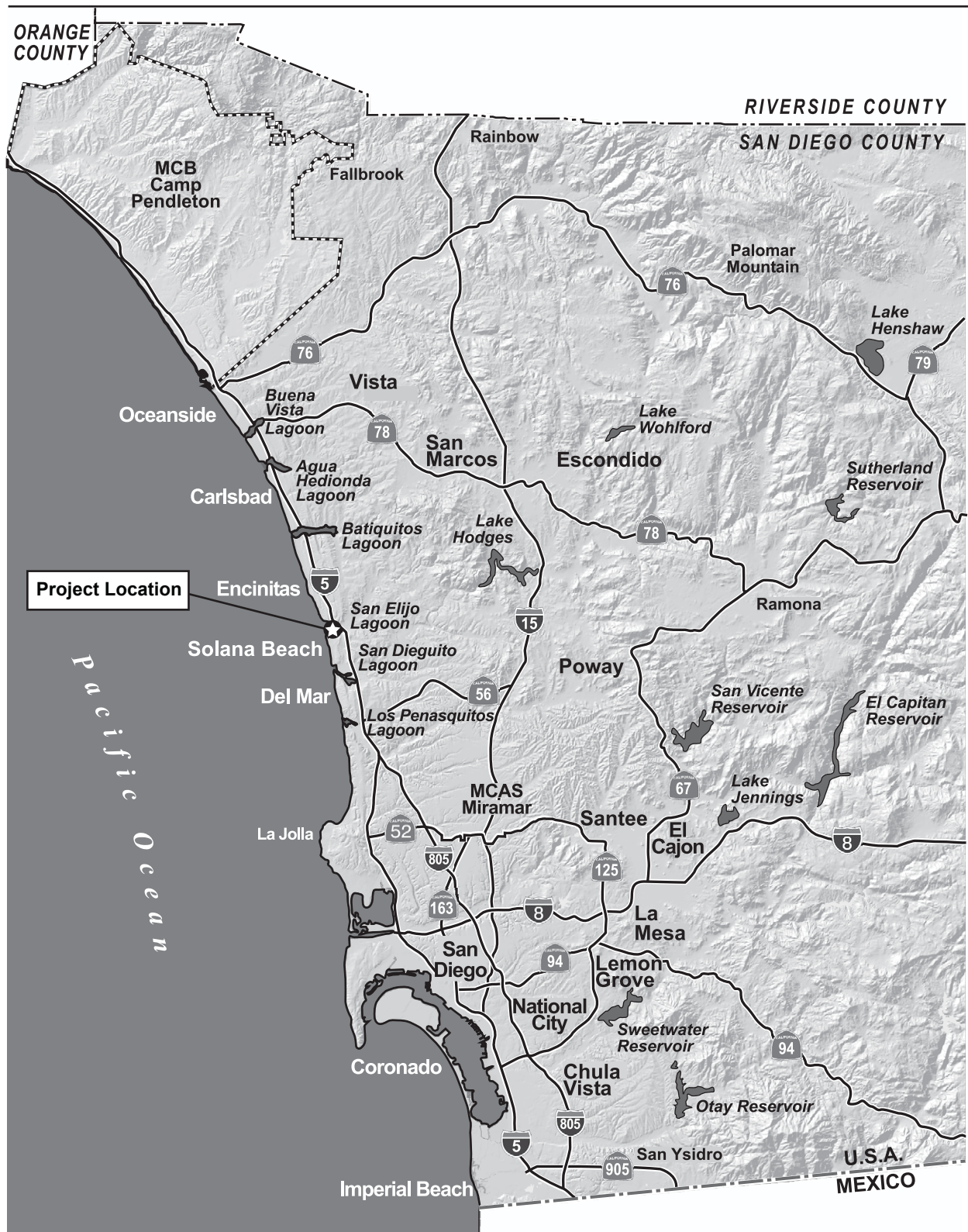
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### **1.3 LOCATION**

San Elijo Lagoon (lagoon) is located in the City of Encinitas, San Diego County, California (Figure 1). The lagoon is the terminus of Escondido Creek and La Orilla Creek at the Pacific Ocean. The project study area is composed of approximately 960 acres, primarily within the San Elijo Lagoon Ecological Reserve (Reserve), and separated into four areas: east basin, central basin, west basin, and coastal area (Figure 2).

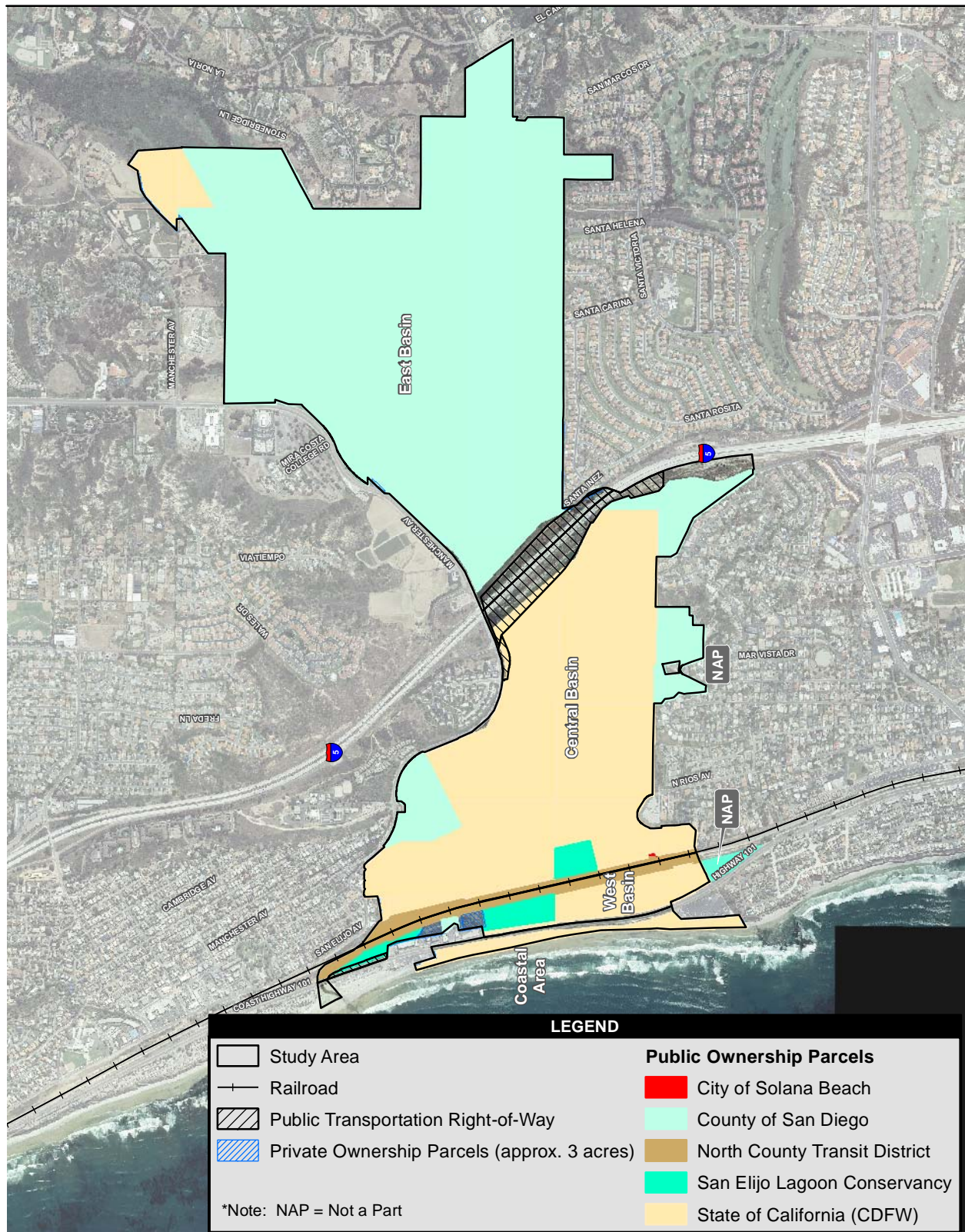
### **1.4 PROPOSED PROJECT DESCRIPTION**

The SELRP has been developed from past efforts in response to the need to improve and restore the water quality, and biological and hydrologic functions of the lagoon. Water quality has been compromised over time, as development within the Escondido watershed has accelerated freshwater storm flows and increased chemicals and nutrients within the lagoon. Water quality issues also occur due to the historic accumulation of nutrients in lagoon sediments, leading to periods of extended eutrophication. Additionally, infrastructure (i.e., Coast Highway 101, the North County Transit District (NCTD) railroad tracks, Interstate 5 (I-5), and the California Department of Fish and Wildlife [CDFW] weir) constraining the hydrologic connection between the ocean and lagoon has affected the ecosystem and gradient of habitats within the lagoon. The SELRP has two components: the restoration of San Elijo Lagoon and the disposal or reuse of materials excavated as part of the restoration. The San Elijo Lagoon Conservancy (the Applicant) proposes to restore lagoon functions and services through dredging and grading to remove high-nutrient sediment and simultaneously create appropriate elevations to support a more stable and connected gradient of balanced habitat types. Dredging and grading activities would increase hydraulic efficiency by reconfiguring lagoon elevations and modifying water flow in and out of the lagoon via changes to the ocean inlet and lagoon channels. Restoration of the lagoon has the potential to generate more than 1 million cubic yards (mcy) of excess material through dredging operations. Various options are available for disposal or reuse of that material (e.g., offshore ocean and/or upland placement or disposal, placement on the beach or nearshore, and reuse on-site), depending on its characteristics. The range of alternatives developed for the SELRP reflects differing levels of material removal and resulting water quality improvements and habitat distributions. Infrastructure improvements are also included in the project alternatives as necessary.



**Figure 1**  
**Regional Map**





Source: SANDAG 2012; SanElijoConservancy; SanGIS; AECOM 2014



2,000 1,000 0 2,000 Feet



Scale: 1:24,000; 1 inch = 2,000 feet

**Figure 2**  
**San Elijo Lagoon Restoration Project**  
**Study Area and Land Ownership**

San Elijo Lagoon Restoration Project Draft 404(b)(1) Alternatives Analysis

Path: P:\2009\09080064\_SELRP\_EIR\6.0 GIS\6.3 Layout\404\StudyArea\_and\_Ownership.mxd, 10/24/2014, augellop

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## 2.0 ALTERNATIVES ANALYSIS

Under the Guidelines, the Corps must consider a number of factors when making its permit decisions, including whether there are practicable alternatives to the proposed discharge. An alternative is “practicable” if “it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes” [40 CFR 230.10(a)(2)].

Although all requirements in 40 CFR 230.10 must be met, the introduction to 40 CFR 230.10 (a) recognizes that the level of analysis required “will vary to reflect the seriousness of the potential for adverse impacts on the aquatic environment posed by specific dredged or fill material discharge activities.” Furthermore, Regulatory Guidance Letter 93-02 reiterates that the Guidelines afford flexibility to adjust the stringency of the alternatives review to reflect the complexity and extent of the discharge activity. The following alternatives analysis for the proposed project is commensurate with the extent of the discharge activity and the potential for adverse impacts on the aquatic environment.

### 2.1 ON-SITE ALTERNATIVES

Four on-site project alternatives are described and analyzed in the Final EIR/EIS, including Alternative 1B – Refined, which evolved from the original Alternative 1B evaluated in the Draft EIR/EIS. Alternative 1B – Refined represents Alternative 1B with engineering and construction method refinements integrated in order to reflect public comments and agency input. This Alternatives Analysis provides the reader with project information about Alternative 1B with refinements (hereafter referred to as Alternative 1B – Refined). The alternatives evaluated in this Alternatives Analysis are:

- Alternative 2A
- Alternative 1B – Refined
- Alternative 1A
- No Project/No Federal Action Alternative

#### *Design Modifications*

The Draft EIR/EIS evaluated four on-site alternatives. In 2015, Alternative 1B was subject to multiple design modifications in a continuing effort to improve design to continue to meet project objectives but minimize impacts to federally listed species and their habitat. The final iteration of these design changes is referred to as Alternative 1B – Refined. Alternative 1B –

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Refined represents Alternative 1B with engineering and construction method refinements integrated and this 404(b)(1) Alternatives Analysis therefore evaluates this refined alternative.

As part of the refinements incorporated into Alternative 1B, areas designated for shallow grading/dredging to convert habitat types in the lagoon would be reduced to minimize impacts to existing and emergent vegetation. These reductions in shallow grading/dredging reduce sediment removal needs, but would generally be located outside of the areas predicted to have high-nutrient soils that contribute to eutrophication in the lagoon. Therefore, reductions in grading/dredging in these locations would not substantially impair the ability of the project to address water quality objectives. To further reduce habitat impacts from project implementation, the width of the main channel in the east basin would be reduced compared to that originally proposed for Alternative 1B. Sufficient width would be maintained to convey fluvial flows out of the lagoon as well as tidal flows east of the proposed transitional area. Additional detail on these refinements is provided under Refinement 1 and Refinement 2 in Table 1.

As described under the initial design for Alternative 1B, Alternative 1B – Refined would involve creation of an overdredge pit to allow for disposal of poor-quality (e.g., fine-grained) material and to provide material suitable for reuse within the littoral zone. Poor-quality sediment would be placed in an overdredge pit in the central basin, within an area known to have high-nutrient sediments resulting from historic discharge of sludge into the lagoon. Sediment removal in this location is a key component of meeting the project objectives to address eutrophication concerns in the lagoon. Additional detail is provided under Refinement 3 in Table 1.

To address concerns associated with the long-term conversion of jurisdictional wetlands to upland habitat and minimize impacts to existing habitat, transitional areas would be reduced in Alternative 1B – Refined. These reductions would reduce conversion of wetlands, but would not have a substantial effect on the ability of the lagoon to adapt to sea level rise because the perimeter of each area would remain available for conversion as water elevations increase. Additional detail is provided under Refinement 4 in Table 1.

To minimize the extent of habitat affected by inundation, Alternative 1B – Refined would utilize a refined construction approach to reduce the area inundated during construction. Grading would occur in areas proposed for shallow grading/dredging (e.g., mudflats and low marsh adjacent to channels), while dredging would be limited to the creation of the overdredge pit and channels. Additional detail is provided under Refinement 5 in Table 1.

Overall, refinements would result in a grading/dredging decrease of approximately 28 acres at selected areas in the central and east basins and a slight increase in grading/dredging (0.5 acre) at an isolated location in the east basin. Because dredging would be limited to channels, required

water elevations would decrease and 85 percent (110 acres) less habitat would be inundated during construction. A more detailed summary of refinements incorporated into Alternative 1B – Refined is provided in Table 1 below.

**Table 1**  
**Summary of Reduced Impacts from Alternative 1B – Refined Refinements**

	<b>Refinement</b>	<b>Resulting Reduction in Habitat Impacts</b>
1.	Reduced channels – Proposed channels were reduced in size, where hydraulic capacity could be maintained to ensure drainage of freshwater flows and allow tidal exchange. Reductions in channels specifically occurred in the east basin, removing one channel connection and reducing the main channel width.	Reduction of channels in the east basin preserves existing salt panne habitat east of the existing CDFW weir and high salt marsh habitat in the far east basin.
2.	Reduced transitional area – The acreage of proposed transitional areas within the central and east basins was reduced. Some transitional area is still proposed to supplement the lagoon’s resiliency into the future under sea level rise.	Reduction of transitional areas decreases the conversion of jurisdictional wetland to upland. Specifically, the transitional area in the east basin was redesigned to avoid impacts to existing salt panne habitat east of the CDFW weir. Areas in the southern portion of the central basin were reduced in size to reduce impacts to mudflat and mid-marsh. Transitional habitat proposed in the refugia area in the northwest portion of the central basin was removed.
3.	Reduced shallow grading/dredging – Shallow grading/dredging areas designed to create mudflat and low-marsh have been reduced in size, while maintaining sediment removal needed to address water quality concerns (eutrophication caused by soil nutrient accumulation).	Grading/dredging in salt marsh in the southern portion of the central basin have been reduced, resulting in a decrease in mudflat habitat, but decreased impacts to existing mid-marsh habitat. In the west basin, an area proposed for creation of low-marsh has been eliminated, reducing impacts to mudflat and surrounding mid-marsh.
4.	Reduced size of overdredge pit – Due to the reduced volume of material removed under Alternative 1B – Refined, the volume of the overdredge pit would be reduced from 1.2 mcy to 920,000 cubic yards (cy). The side slopes of the overdredge pit were also reduced from 5:1 to 3:1.	Reducing the size of the overdredge pit decreases potential impacts to existing and emergent low-marsh habitat in the central basin.
5.	Reduced inundated area – Areas proposed for shallow grading/dredging would be graded by low-pressure equipment that can construct in wet/soft conditions with minimal soil compaction. Because of this reduction in dredging, a smaller elevation range would be required (-3 feet to +2 feet National Geodetic Vertical Datum [NGVD] compared to a maximum inundation of +6 feet NGVD proposed under Alternative 1B).  Phasing to maintain lower than normal water levels (-3 feet NGVD) would enable shallow grading to be completed initially. Sediment removed during grading would be temporarily shifted to adjacent channels proposed for dredging. After completion of grading, water	Reducing the extent and duration of inundation reduces mortality impacts to vegetation, as well as impacts to species that depend on that vegetation for nesting and foraging. Water would also be released intermittently, as recommended by the on-site biologist, enabling tidal exchange and circulation in the basin during construction. Post-construction recovery would also be enhanced because more habitat would remain

	<b>Refinement</b>	<b>Resulting Reduction in Habitat Impacts</b>
	levels would be increased to up to +1 foot NGVD in the west basin, and up to +2 feet NGVD in the central and east basins, inundating areas primarily within channels. A cutterhead dredge would then remove both the sediment that was shifted using the low-pressure equipment and the excess channel sediment and place both in the overdredge pit.	intact during construction.

## 2.2 OFF-SITE ALTERNATIVES

As required by the Guidelines, off-site alternative project sites were considered to determine if there is an alternative site available on which the proposed project could be constructed that would involve fewer impacts on aquatic resources than the proposed project and that would not have concomitant adverse impacts on other sensitive resources such as listed species. The project is water dependent as described under Basic Project Purpose in Section 1.2. In addition, the project is also site-specific and could not be replicated in other locations. Since the proposed project is water dependent and site-specific, off-site alternatives would not satisfy the project purpose and, therefore, no specific off-site alternatives were identified. The 404(b)(1) alternatives analysis focuses on on-site alternatives.

## 2.3 PRACTICABILITY OF ALTERNATIVES

The following criteria were used to screen the practicability of on-site alternatives: overall project purpose, cost criteria, logistics criteria, and environmental impacts.

**Overall Project Purpose:** To be practicable, an alternative must meet the overall project propose, which is to enhance and restore the physical and biological functions and services of San Elijo Lagoon. This would be accomplished by increasing hydraulic efficiency in the lagoon, addressing existing water quality impairments, and halting ongoing conversion of unvegetated wetland habitats to support a more connected gradient of balanced habitat types. An alternative's ability to meet the overall project purpose is further defined by the following criteria.

### 1. *Hydraulic Efficiency/Residence Time*

The practicable implementation of the project depends on the ability to improve water quality by restoring circulation to the lagoon, measured by shortening residence time within each basin of the lagoon. Residence time is an indicator of flushing efficiency and circulation within the lagoon. Transportation infrastructure and sedimentation across the lagoon has contributed to hydraulic inefficiencies and, as a result, long residence times. Minimal flushing and circulation contributes to decreased water quality and near-stagnant conditions,

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particularly in the east basin where flushing is most limited. Under this criterion, restoration of adequate circulation in the lagoon is measured by improving residence times to less than seven days in a majority of each lagoon basin (i.e., greater than 50 percent of sample sites in each basin).

## **2. *Water Quality/Eutrophication***

The practicable implementation of the project depends on the ability to improve water quality by addressing existing eutrophication concerns. San Elijo Lagoon is currently on the 303(d) list of impaired water bodies for eutrophic conditions, and nutrient-rich sediments within the lagoon have been documented to be the primary cause of eutrophication in the lagoon. Nutrients have accumulated over time in the lagoon due to sedimentation and historic wastewater sludge discharges in the central and east basins. Removal of substantial amounts of sediment in areas predicted to contain high-nutrient sediments would help address this water quality impairment. The total extent of nutrient rich sediments due to historic sludge discharge throughout the lagoon is approximately 115.5 acres. Under this criterion, removal of more than 38 acres or one-third of sediment located within historic sludge deposits would be considered substantial enough to reduce the nutrient input into the water column and improve water quality, reducing the risk or potential severity of eutrophic events.

## **3. *Water Quality/Bacteria***

The practicable implementation of the project depends on the ability to improve water quality by reducing bacteria concentrations. Both San Elijo Lagoon and the shoreline near the lagoon mouth are on the CWA Section 303(d) list for bacteria (indicator bacteria within the lagoon, total coliform bacteria in the nearshore). Bacteria can be harmful to the health of organisms and humans. Samples analyzed in the water quality study suggest that nearly all bacteria loading into the lagoon occurs during storm events (Appendix E). Under existing conditions high levels of bacteria remain in the nearshore for an average of nine days after storm events. An alternative would substantially improve water quality in the nearshore if the alternative results in a reduction in the duration of high bacteria concentrations after storm events to six days or less.

## **4. *Habitat Conversion***

The practicable implementation of the project would depend on the ability to halt ongoing conversion from unvegetated to vegetated habitat types. This habitat conversion (typically of previously unvegetated mudflat habitat to mid- and low marsh) has been occurring since inlet management was initiated in the mid-1990s. Halting rapid habitat conversion would

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minimize the loss of additional foraging habitat for sensitive species, including the light-footed Ridgway's rail, California least tern and western snowy plover. In addition, a mix of channels and areas of open water with vegetated wetland areas maintains circulation within the wetland, resulting in higher quality foraging base for resident and nesting birds. Under this criterion, a project would substantially improve the range of tidal habitats if its implementation would halt the ongoing conversion of unvegetated habitat types, as predicted using tidal hydraulic modeling, resulting in a more stable and connected gradient of balanced habitats.

**Cost Criteria:** Estimated costs for each alternative were developed based on a measure of the size of overall grading/construction and the individual unit costs for various facilities that make up the alternative conceptual design. To meet the cost criteria, construction costs for an alternative should not be substantially greater than the costs normally associated with lagoon/tidal restoration projects. The following cost criteria were developed to evaluate practicability based on both construction and maintenance:

***1. Construction Cost***

The practicable implementation of the project would depend on the ability of the project to be constructed at a reasonable cost. Based on average costs of other restoration projects in Southern California over the last 30 years, implementation of similar projects typically costs up to \$175,000 per acre. Therefore, under this criterion, a project would be considered practicable if construction would cost approximately \$175,000 per acre or less.

Table 2 presents a breakdown of costs associated with construction for each alternative.

**Table 2**  
**Breakdown of Construction Costs for each Build Alternative**

Alternative	Dredging, Grading and Other Construction	Materials Placement/ Disposal	New Inlet Creation (Alternative 2A only)	Total Construction Cost	Cost per Acre
2A	\$30,000,000	\$75,000,000	\$35,000,000	\$150,000,000	\$156,217
1B – Refined	\$25,000,000	\$50,000,000	\$0	\$75,000,000	\$78,108
1A	\$5,000,000	\$25,000,000	\$0	\$40,000,000	\$41,667



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## 2. *Inlet Maintenance Cost*

The practicable implementation of the project would depend on the ability of the project to be maintained at a reasonable cost. Based on other lagoon inlet maintenance programs requiring dredging (similar to Alternative 2A), inlet maintenance typically costs up to \$10 per cubic yard of material removed. Therefore, under this criterion, a project would be considered practicable if maintenance would cost approximately \$10 per cubic yard of sand removed or less.

Table 3 presents inlet maintenance costs for each alternative.

**Table 3**  
**Maintenance Costs for each Alternative**

<b>Alternative</b>	<b>Inlet Maintenance Cost</b>	<b>Cubic Yards Removed</b>	<b>Cost per Cubic Yard</b>
2A	\$3,000,000 every 3 years	300,000	\$10.00
1B – Refined	\$200,000 every year	40,000	\$5.00
1A	\$150,000 every year	35,000	\$4.28
No Project/ No Federal Action	\$120,000 every year	25,000	\$4.80

**Logistics Criteria:** These criteria include issues related to the complexity of the project design based on individual site characteristics and the alternative designs. The following logistical criteria were developed to evaluate practicability:

### 1. *Inlet Stability and Maintenance*

The practicable implementation of the project depends on the ability to provide a relatively stable inlet that can be maintained consistently open and provide the hydrology required for sustaining proposed habitats and water quality. Creation of a consistently open mouth enhances the health and ecological value of the lagoon by allowing tidal flushing and mixing. Inlet maintenance is required to maintain a functioning inlet but has short-term impacts on aquatic organisms, water quality, and recreational use. The frequency of inlet maintenance depends on cost, volume, protection of restored habitats, tidal muting, and inlet stability. An alternative may be considered impracticable if a consistently open inlet that supports improved habitats and water quality could not be maintained.

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## **2. *Local Ordinances, Policies, Adopted Plans, and Federal and State Law***

The practicable implementation of the project depends on the ability to comply with local ordinances and regulations as well as federal and state law. An alternative may be considered impracticable if construction and operation would result in noncompliance with local regulations. In addition, alternatives must not violate applicable federal or state laws.

## **3. *Project Phasing***

The practicable implementation of the project depends on the ability to utilize construction phasing and sequencing to minimize or avoid potential effects to sensitive resources within the lagoon. For example, clearing and grubbing of habitat areas would be restricted to outside of the bird breeding season to limit effects to breeding bird populations, and dikes would be used to contain and focus flooding needed to conduct dredging, flooding of specific basins and areas while dredging occurs, and draining of flooded areas to allow basins to begin recovery and provide refugia while other basins are under construction. An alternative may be considered impracticable if construction phasing could not be achieved and potential impacts to resources would not be minimized or avoided to the maximum extent feasible.

**Technology Criteria:** The practicable implementation of the project depends on the ability of the project to use technology that is proven and tested, and does not contain features that are technically infeasible to construct. It was determined that technology would have no bearing on the practicability analysis because all alternatives analyzed propose similar construction technology involving grading and dredging within the lagoon to create a balance of vegetated and unvegetated aquatic habitats (e.g., raise or lower elevations, modifications to existing lagoon inlet). An alternative technology for creating a sustainable aquatic habitat gradient that does not involve dredging and grading has not been identified.

**Environmental Criteria:** These criteria demonstrate to what extent the alternatives meet the overall project purpose. As such, these criteria focus on the key components required to achieve the basic and overall project purpose. Environmental impacts due to the implementation of the alternatives were not used to eliminate an alternative in this section. An alternative that may have larger short-term environmental impacts may also result in larger long-term environmental benefits; therefore, alternatives that meet the practicability criteria listed above are carried forward throughout the document. The environmental impacts and expected benefits for each practicable alternative are fully analyzed in Section 4.0 of this document.

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## **2.3.1 PRACTICABILITY OF ON-SITE ALTERNATIVES**

### **2.3.1.1 Alternative 2A**

Alternative 2A, shown in Figure 3, would construct a new inlet south of the existing inlet (M&N 2012a). The new inlet would require stabilization through the incorporation of cobble blocking features (CBFs) at the beach and development of a “prefilled ebb bar” located in the nearshore area outside of the new outlet location. A new bridge along Coast Highway 101 would also be constructed to span the proposed new inlet location, and would incorporate a dedicated pedestrian sidewalk for access along the shoreline.

With this alternative, a new subtidal basin would be created just landward of the new inlet in the west and central basins to capture sediment entering the lagoon. The main tidal channel would be widened and redirected just west of I-5, and would then extend into the east basin. The southern channel and secondary channels within the central basin would also be widened and deepened. The existing channel in the east basin would be widened by approximately 275 feet and the existing CDFW dike and weir would be removed. These actions would promote increased tidal exchange east of I-5 and allow more freshwater flows to exit the lagoon. Dredging, particularly in the central basin, would remove nutrients bound in lagoon sediments that can lead to eutrophication. Man-made transitional habitat would be created by filling on top of, and alongside, the remnants of the weir. This habitat is intended to provide refugia in the form of continually transitioning habitat over time as sea level rises. Three other areas of transitional habitat above tidal elevations would be created in the central basin. Together, these would supplement the natural transitional habitat occurring in a band around the perimeter of the lagoon. A former sewage settling pond in the central basin would be filled and capped with sand and crushed shell for use as a nesting area.

The primary change in habitat distributions under Alternative 2A would be an increase in open water areas/tidal channels and mudflat habitat within the lagoon compared to existing conditions. Open water areas and tidal channels would be increased in all three lagoon basins compared to existing conditions. Mudflat and open water/tidal channels would be actively created throughout the central basin and replace existing mid-marsh and low-marsh habitat to create a balance of vegetated and unvegetated wetlands. Similarly, open water/tidal channels and low-marsh would be actively created in the east basin where freshwater/brackish marsh currently exists. Increases to estuarine habitat (low-, mid-, and high-marsh) may also occur as a result of conversion of salt panne and freshwater/brackish marsh in the east basin as tidal expression increases.

Alternative 2A would involve overexcavation of the area to be dredged to create the proposed sedimentation basin so that poor-quality material (e.g., fine-grained) could be buried in an

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“overdredge” pit and covered with a sand cap. The good-quality (e.g., larger-grained) material from the overdredge pit in the central basin would then be available for beneficial reuse. It is anticipated that approximately 1.4 mcy of material would be exported for reuse for the initial implementation of Alternative 2A. Approximately 500,000 cy of this sand material from the overdredge pit would be placed in the ocean nearshore, west of the proposed inlet location to “prefill” the anticipated ebb bar that would form off the inlet.

Alternative 2A would require a new Coast Highway 101 bridge at the new inlet location. The new bridge would not increase vehicular capacity along Coast Highway 101, but it would include a separated pedestrian walkway on the west side of the structure to ensure north-south pedestrian and bicycle access. Changes to the I-5 and NCTD crossings would also be required, and would be implemented by others, but changes to Coast Highway 101 are included in the proposed project. Bridge improvements at the I-5 crossing, as planned by the California Department of Transportation (Caltrans), would lengthen and deepen the existing channel opening. The NCTD railroad would remain in place and another bridge would be constructed by NCTD to span the proposed inlet, although the channel underneath the existing railroad tracks would require deepening for improved hydraulics as part of the Los Angeles to San Diego Proposed Rail Corridor Improvements (LOSSAN) project. Rock armoring would be installed at all three features to provide channel bank and bridge abutment protection and prevent undermining by increased tidal/fluvial flows.

The nearshore zone off San Elijo Lagoon contains a high volume of cobbles and the proposed new inlet would minimize cobble migration into the lagoon through the use of CBFs. The CBFs would be two relatively short, low rock features along the sides of the tidal inlet channel.

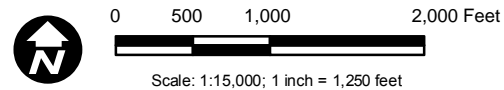
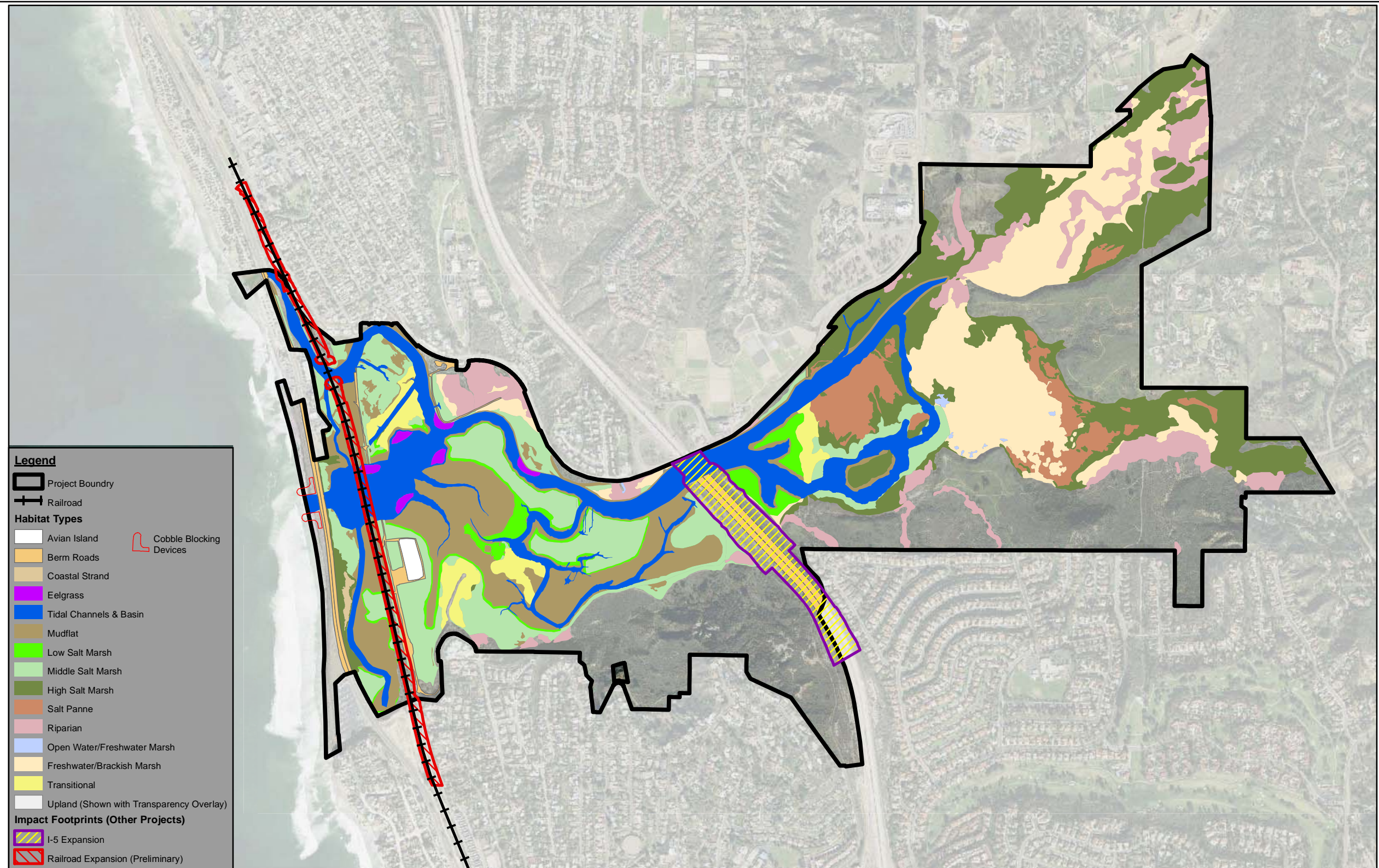
Routine maintenance dredging would be required to maintain appropriate inlet connection to the ocean, and approximately 300,000 cy is anticipated to be dredged from the inlet every 3 to 4 years. Maintenance would occur over a period of 5 months and the material is planned for placement on Cardiff Beach, south of the new tidal inlet.

## **Overall Project Purpose:**

### ***1. Hydraulic Efficiency/Residence Time***

With the greatest amount of grading/dredging and tidal circulation, Alternative 2A would demonstrate the greatest ability to disperse contaminants and prevent the formation of stagnant conditions with rapid, continuous water exchange, thereby improving water residence times and water quality conditions (i.e., bacteria, nutrients, improved vector control) throughout the lagoon. Alternative 2A would result in the greatest physical





**Figure 3**  
**Alternative 2A**

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restoration of lagoon estuarine hydrologic functions and would achieve maximum tidal range. As shown in Table 4 below, Alternative 2A would result in residence times below 7 days in each of the locations modeled in the three lagoon basins.

**Table 4**  
**Proportion of Sample Sites in Each Basin with**  
**Residence Times Less Than 7 Days under Alternative 2A**

Alternative	West Basin	Central Basin	East Basin
Existing	1/2	6/11	0/5
<b>2A</b>	2/2	11/11	5/5

## **2. *Water Quality/Eutrophication***

Alternative 2A proposes to remove the greatest amount of sediments containing historic nutrient loads. Alternative 2A would remove 68.4 acres (59 percent), more than one-third of the high-nutrient sediment deposits.

## **3. *Water Quality/Bacteria***

Under Alternative 2A, high-bacteria conditions would persist for one day (8-day reduction).

## **4. *Habitat Conversion***

Alternative 2A proposes the greatest extent of lagoon restoration activities and would result in enhanced lagoon function and sustainable high-quality intertidal and transitional habitats, which would benefit wildlife species. As described in Section 3.6 of the Final EIR/EIS, this alternative would also halt the current conversion within the lagoon to a more heavily vegetated assemblage of habitats. Open water areas, tidal channels, and mudflat would be increased in all three lagoon basins compared to existing conditions. Mudflat and open water/tidal channels would be actively created throughout the central basin, resulting in a gradient of vegetated and unvegetated habitats. Similarly, open water/tidal channels and low-marsh would be actively created in the east basin where freshwater/brackish marsh currently exists. The increase in unvegetated habitats such as open water and mudflats would increase foraging opportunities for sensitive and nonsensitive bird species and also provide improved water quality through enhanced circulation. The increase in mudflats and open water would improve the balance of available wildlife foraging and nesting opportunities, and improvement in water quality would indirectly improve the health and abundance of available forage for wildlife. Mudflat soils would consist of native soils lowered slightly in

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elevation or soils removed from shallow excavation and placed on top of the overdredge pit sand cap.

As discussed above Alternative 2A would meet the overall project purpose to enhance and restore the physical and biological functions and services of the San Elijo Lagoon as it would improve hydraulic efficiency and reduce residence time to less than seven days; improve water quality/eutrophic conditions by removing more than 38 acres or one-third of nutrient rich sediments; reduce high bacteria concentrations in the nearshore after storm events to six days or less; and halt the current conversion of unvegetated habitat types within the lagoon.

**Cost Criteria:** The following cost criteria evaluate practicability of Alternative 2A based on both construction and maintenance.

### ***1. Construction Cost***

This alternative would involve construction components for enhancement within the lagoon and creation of an inlet (including construction of CBFs on either side of the inlet), as well as materials placement/disposal of up to 1.4 mcy of sand within the littoral zone. The alternative would also require the construction of a bridge spanning the proposed new inlet along Coast Highway 101 and construction of a railroad bridge and raised track spanning the subtidal area within the central basin. Total construction costs are anticipated to be approximately \$150 million (Table 2), which is similar to costs associated with similar lagoon/tidal restoration projects in Southern California (approximately \$156,000 per acre when based on 960 acres).

### ***2. Inlet Maintenance Cost***

Maintenance costs for Alternative 2A would be incurred every 3 to 4 years, but because the inlet would require dredging of up to 300,000 cy of sand during each event, costs for maintenance are anticipated to total approximately \$3 million per event, or \$1 million annually when averaged per year. Mobilization of equipment would include bringing a dredge to the site, as well as pipeline for transporting sand to the beaches and equipment for spreading that sand. The cost for maintenance is similar to other projects requiring dredging for inlet maintenance (approximately \$10 per cy removed).

While the most costly of all alternatives because of the more complex nature of construction, Alternative 2A would incur costs similar to restoration projects with similar construction approaches; therefore, this alternative meets the cost criteria.



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## **Logistics Criteria:**

### ***1. Inlet Stability and Maintenance***

With the creation of a new larger tidal inlet and channel enlargements, Alternative 2A would result in the largest tidal prism and most stable inlet. Alternative 2A would create an inlet that would remain open for long periods of time (3 to 4 years) to provide required hydrology for sustainability of enhanced habitats and water quality. Circulation would increase with the new inlet and improved channel network. Hydrology throughout the lagoon would be greatly improved over existing conditions through the creation of a new and enlarged inlet mouth and enhanced channel flow regimes that would allow freshwater to flow out of the lagoon and promote improved tidal exchange deeper to the inland areas of the lagoon (M&N 2012a). The anticipated increase in tide range under Alternative 2A would shift the inlet from a flood-dominated system to an ebb-dominated system, leading to a more stable inlet condition. This shift to an ebb-dominated system would reduce the entrainment of sand moving along the coast into the inlet, and slow the development of a flood shoal, leading to an inlet that remains open for long periods of time and maintaining a less muted tide range. As a result of the new tidal inlet, Alternative 2A would require less frequent maintenance (every 3 to 4 years) than existing conditions. Approximately 300,000 cy of sediment would be removed every 3 to 4 years. Alternative 2A would provide a relatively stable inlet that can be maintained consistently open and provide the hydrology required for sustaining proposed habitats and water quality.

### ***2. Local Ordinances, Policies, Adopted Plans, and Federal and State Law***

The project area is identified in City of Encinitas and County of San Diego planning documents as an area to be preserved and protected as open space and passive recreational use. Alternative 2A would not alter the lagoon's use or function in a manner inconsistent with applicable regulations and laws or existing and future local land use plans. Alternative 2A would serve to enhance lagoon function and associated flora, fauna, and other recreational assets enjoyed by the public and protected by existing land use regulations. While some environmental impacts would result from actions necessary to implement Alternative 2A, the overall lagoon restoration resulting from Alternative 2A would not result in conflicts with existing land use regulations or policies (see Section 3.1 of the SELRP Final EIR/EIS [AECOM 2015] for land use discussion).

Restoration, maintenance, and monitoring plans for Alternative 2A would be prepared in accordance with the goals of regional conservation plans, and in consultation with the wildlife agencies. Alternative 2A would be consistent with the goals and objectives of both

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the Multiple Habitat Conservation Plan (MHCP) and North County Multiple Species Conservation Program (MSCP). In addition, Alternative 2A would be in compliance with federal and state laws.

### **3. *Project Phasing***

Alternative 2A is anticipated to take approximately 3 years to construct and would be phased to minimize impacts to lagoon habitats, allowing for refuge for species and retaining some habitat areas at any given time during construction. Phasing would occur in four stages under Alternative 2A, which would minimize or avoid potential impacts to sensitive resources within the lagoon to the maximum extent feasible (see Section 2.10 of the SELRP Final EIR/EIS [AECOM 2015] for project phasing discussion).

Alternative 2A would result in a more stable inlet as compared to existing conditions, would comply with local ordinances and regulations as well as federal and state law, and would allow for construction phasing; therefore, Alternative 2A meets the logistics criteria.

Based on the evaluation of overall project purpose, cost, and logistics criteria, Alternative 2A is considered practicable. Therefore, this alternative is carried forward to Section 4.0 of this document for further analysis.

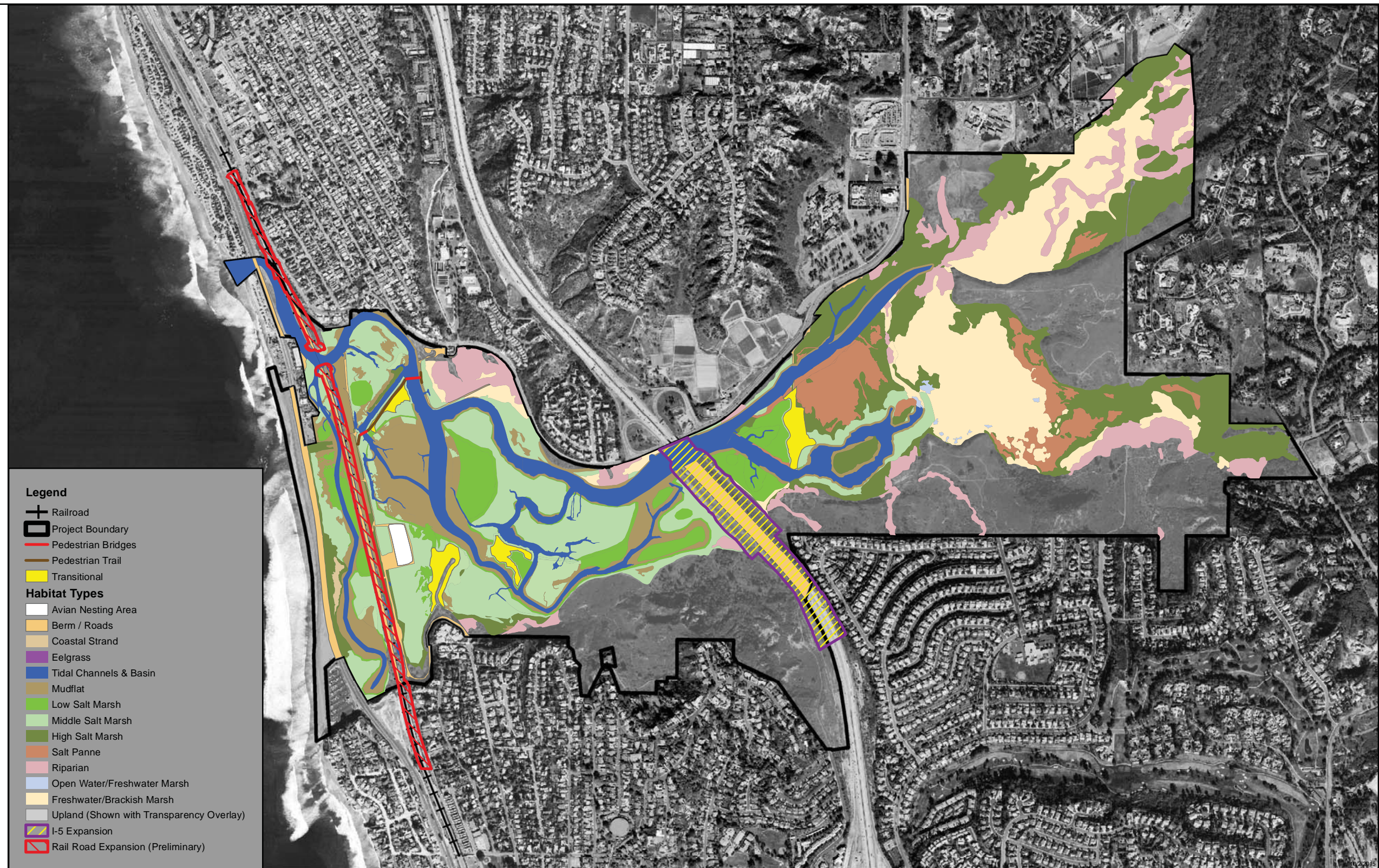
#### **2.3.1.2 Alternative 1B – Refined**

Alternative 1B – Refined evolved from the original Alternative 1B evaluated in the Draft EIR/EIS. Alternative 1B – Refined represents Alternative 1B with integrated engineering and construction method refinements, superseding the original Alternative 1B. Alternative 1B – Refined is therefore analyzed in this section.

Alternative 1B – Refined, shown in Figure 4, would utilize low-pressure land-based earthmoving equipment as well as dredge equipment to minimize impacts to existing vegetation. Grading would occur in areas proposed for shallow grading/dredging (e.g., mudflats and low marsh adjacent to channels), while dredging would be limited to the creation of the overdredge pit and channels. Using this equipment instead of dredges in areas of shallow grading/dredging would reduce inundation water elevations necessary to conduct dredging (up to +2 feet NGVD), which would reduce impacts to vegetation from prolonged inundation.

Under Alternative 1B – Refined, the main tidal channel would be extended and a mix of unvegetated (e.g., mudflats and secondary channels) and vegetated habitats created south of the main channel in the central basin. The main channel in the east basin would be reduced from





**Figure 4**  
**Alternative 1B - Refined**



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approximately 295 feet in width under Alternative 2A to approximately 180 feet. This change is designed to minimize impacts to adjacent habitats, specifically salt panne east of the existing CDFW dike. Sufficient width would be maintained to convey fluvial flows out of the lagoon as well as tidal flows east of the proposed transitional area. The southern channel and secondary channels within the central basin would also be improved. The reduced grading extent compared would retain a greater extent of emergent low-marsh, which would facilitate recovery of the lagoon after restoration. Retention of emergent low-marsh would be balanced with the need to remove high nutrient sediments that currently cause water quality issues, such as eutrophication, in the lagoon.

The main channel would be redirected just west of I-5 and extended farther into the east basin. The channel in the east basin would be enlarged by approximately 160 feet, and the CDFW dike and weir would be removed; combined, this would promote more tidal exchange east of I-5 and enhance the ability of freshwater flows to drain from the lagoon. The tidal prism of Alternative 1B – Refined would be substantially increased compared to existing conditions. Approximately 10 acres of transitional habitat above tidal elevations would be created to supplement the natural transitional habitat that extends around the perimeter of the lagoon. These areas would also offer refugia for anticipated future sea level rise conditions.

Alternative 1B – Refined would result in an increase in open water/tidal channels, low-marsh, mudflat, and created transitional habitat compared to existing conditions. Most of the increase in open water/tidal channels and mudflat habitat would occur in the central and east basins, and would result in a corresponding decrease in mid-marsh, salt panne, and freshwater/brackish marsh habitats.

Mudflat soils would consist of native soils lowered slightly in elevation or soils removed from shallow excavation and placed on top of the overdredge pit sand cap. The open freshwater ponds currently maintained by the CDFW weir would be converted to open water/tidal channels and low-marsh habitat.

Alternative 1B – Refined would involve creation of an overdredge pit, which would generate larger-grained material suitable for reuse within the littoral zone and provide disposal for fine-grained material associated with dredging/grading. It is anticipated that approximately 920,000 mcu of material would be exported from the overdredge pit in the central basin for reuse. Alternative 1B – Refined would fill the former sewage settling pond in the central basin and cap it with sand and crushed shell for use as a nesting area.

Alternative 1B – Refined assumes bridge improvements at the I-5 crossing, as planned by Caltrans, which would result in the channel under the I-5 bridge being lengthened and deepened.

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The existing bridges at Coast Highway 101 and the NCTD railroad would remain in place, although the channels underneath would require deepening for improved hydraulics as part of the LOSSAN project (planned for implementation by others). The existing Coast Highway 101 bridge structures would also be seismically retrofitted. Rock armoring would be installed at all three features, in compliance with the owners' design standards, to provide channel bank and bridge abutment protection and prevent undermining by increased tidal/fluvial flows.

Inlet maintenance for Alternative 1B – Refined would require the removal of approximately 40,000 cy annually, utilizing the same land-based approach and occurring in the same location as existing inlet management. That maintenance is anticipated to occur in spring (typically April) and require approximately 4 weeks.

### **Overall Project Purpose:**

#### ***1. Hydraulic Efficiency/Residence Time***

Alternative 1B – Refined would achieve improved water residence times and water quality conditions (i.e., bacteria, nutrients, improved vector control) throughout the lagoon as compared to existing conditions. Residence times under Alternative 1B – Refined would be less than 7 days in a majority of each basin (Table 5).

**Table 5**  
**Proportion of Sample Sites in Each Basin with Residence Times**  
**Less Than 7 Days under Alternative 1B – Refined**

<b>Alternative</b>	<b>West Basin</b>	<b>Central Basin</b>	<b>East Basin</b>
Existing	1/2	6/11	0/5
1B – Refined	2/2	11/11	3/5

#### ***2. Water Quality/Eutrophication***

Alternative 1B – Refined would remove 54.8 acres (47 percent) of the high-nutrient sediment, more than one-third of the predicted high-nutrient sediment deposit in the lagoon.

#### ***3. Water Quality/Bacteria***

Alternative 1B – Refined would result in a 6-day duration of high-bacteria conditions (3-day reduction).

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#### **4. *Habitat Conversion***

Alternative 1B – Refined would create a more stable and connected balance of habitats through modifications to channels and habitat areas within the lagoon and would result in an increase in open water/tidal channels, low-marsh, mudflat, and man-made transitional habitat compared to existing conditions. Alternative 1B – Refined would halt ongoing conversion within the lagoon to a more heavily vegetated assemblage of habitats. The increase in open water, tidal channels, and mudflats would increase foraging opportunities for sensitive and nonsensitive bird species and also provide improved water quality. The increase in mudflats and open water would improve the balance of available wildlife forage and nesting opportunities, and improvement in water quality may indirectly improve the health and abundance of available forage for wildlife. Post-restoration, Alternative 1B – Refined would create less concentrated subtidal habitat and would support a better gradient of balanced habitat types.

As discussed above Alternative 1B – Refined would meet the overall project purpose to enhance and restore the physical and biological functions and services of the San Elijo Lagoon as it would improve hydraulic efficiency and reduce residence time to less than seven days in a majority of each lagoon basin; improve water quality/eutrophic conditions by removing more than 38 acres or one-third of nutrient rich sediments; reduce high bacteria concentrations in the nearshore after storm events to six days or less; and halt the current conversion of unvegetated habitat types within the lagoon.

**Cost Criteria:** The following cost criteria evaluate practicability of Alternative 1B – Refined based on both construction and maintenance.

##### **1. *Construction Cost***

This alternative would involve construction components for enhancement within the lagoon, including creation of a trail along the proposed transitional area in the central basin. Materials placement/disposal of up to 920,000 cy of sand would also occur within the littoral zone, which would also incur costs for the alternative. Construction costs are anticipated to be approximately \$75 million, which is similar to costs associated with lagoon/tidal restoration projects (approximately \$78,000 per acre when based on 960 acres). See Table 2 for cost breakdown.

##### **2. *Inlet Maintenance Cost***

Maintenance costs for Alternative 1B – Refined would be incurred as frequently as every year, but would utilize similar equipment to that currently used for inlet

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maintenance. Equipment is readily available (e.g. backhoes/long-arm excavators, dump trucks, and bulldozers) and can access the site via existing roadways. Overall costs for maintenance are anticipated to total approximately \$200,000 annually. The cost is similar to other projects using land based equipment for inlet maintenance (approximately \$5 per cy removed).

Alternative 1B – Refined would incur costs similar to restoration projects with similar construction approaches; therefore, this alternative meets the cost criteria.

## **Logistics Criteria:**

### ***1. Inlet Stability and Maintenance***

In the dredged condition, tidal exchange between the lagoon and ocean would be increased over existing conditions under Alternative 1B – Refined. Sediment would continue to be entrained in the inlet in a developing flood shoal between maintenance cycles that would require removal each year to maintain a predominantly open inlet condition with the predicted tide ranges. Alternative 1B – Refined would provide a relatively stable inlet that can be maintained consistently open and provide the hydrology required for sustaining proposed habitats and water quality.

### ***2. Local Ordinances, Policies, Adopted Plans, and Federal and State Law***

The project area is identified in City of Encinitas and County of San Diego planning documents as an area to be preserved and protected as open space and passive recreational use. Alternative 1B – Refined would not alter the lagoon’s use or function in a manner inconsistent with applicable regulations and laws or existing and future local land use plans. Many of the land use regulations applicable to the project study area are geared toward the conservation, preservation, and restoration of the lagoon area and associated coastal, biological, and recreational resources. Alternative 1B – Refined would enhance lagoon function and associated flora, fauna, and other recreational assets enjoyed by the public and protected by land use regulations. While some environmental impacts would result from actions necessary to implement Alternative 1B – Refined, the overall lagoon restoration resulting from Alternative 1B – Refined would not cause conflicts with existing land use regulations or policies (see the Preface of the Final EIR/EIS [AECOM 2015] for land use discussion).

All restoration, maintenance, and monitoring plans prepared for Alternative 1B – Refined would be prepared in accordance with the goals of regional conservation plans, and in consultation with the wildlife agencies. Alternative 1B – Refined would be consistent with



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the goals and objectives of both the MHCP and draft North County MSCP. In addition, Alternative 1B – Refined would be in compliance with federal and state laws.

### **3. *Project Phasing***

Alternative 1B – Refined would be phased, and would minimize the extent of habitat affected by grading/dredging and inundation to preserve existing habitats. Alternative 1B – Refined would incorporate four phases during construction, minimizing potential impacts to sensitive resources within the lagoon to the maximum extent feasible (see the Preface of the SELRP Final EIR/EIS [AECOM 2015] for project phasing discussion).

Alternative 1B – Refined would provide a relatively stable inlet that can be maintained, would comply with local ordinances and regulations as well as federal and state law, and would allow for construction phasing; therefore, Alternative 1B – Refined meets the logistics criteria.

Based on the evaluation of overall project purpose, cost, and logistics criteria, Alternative 1B – Refined is considered practicable. Therefore, this alternative is carried forward to Section 4.0 of this document for further analysis.

#### **2.3.1.3 Alternative 1A**

Alternative 1A, shown in Figure 5, would implement the fewest physical changes to the lagoon. The main feeder channel throughout the site would be enlarged and redirected. The main tidal channel would be extended farther into the east basin, and existing constricted channel connections would be cleared and enlarged. Under Alternative 1A, the existing channel in the east basin would be widened by approximately 50 feet. The existing CDFW dike would be left in place, but two new openings would be created through it to allow tidal and fluvial connections. The tidal prism of Alternative 1A would be slightly increased compared to existing conditions. Existing habitat areas would essentially remain intact, although current conversion trends from unvegetated intertidal habitats to vegetated intertidal habitats would be expected to continue. High nutrient sediment removal would primarily be limited to the main channel. Some freshwater habitat areas in the east basin are anticipated to convert to more saltwater-based communities due to enhanced tidal influence and the resulting changes in inundation frequencies. One small area of transitional habitat (refugia above tidal elevations) would be constructed in the northwest portion of the central basin.

Alternative 1A habitat distribution would result in a high proportion of mid- and high-marsh habitat. There would be a decrease of mudflat, open water/tidal channels, and freshwater/brackish marsh and an increase of low-marsh and high-marsh habitat compared to

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existing conditions. This alternative allows the continued conversion of mudflats to low-marsh, and some existing freshwater marsh would be converted to high-marsh and open water/tidal channel habitat. The resulting habitat distribution would be heavily weighted toward vegetated habitat types rather than a more stable, connected gradient of balanced habitat types. Water quality impairments due to nutrient-rich sediments and limited circulation would also continue to occur.

Channels under I-5 and the railroad bridge would be deepened for improved hydraulics (planned for implementation by others). The channel under Coast Highway 101 would also be widened slightly, but replacement of the existing bridge structure would not be necessary. All three bridge features would be armored, in compliance with the owners' design standards, to prevent undermining.

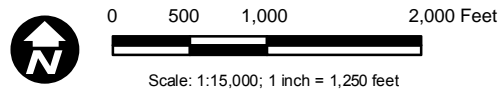
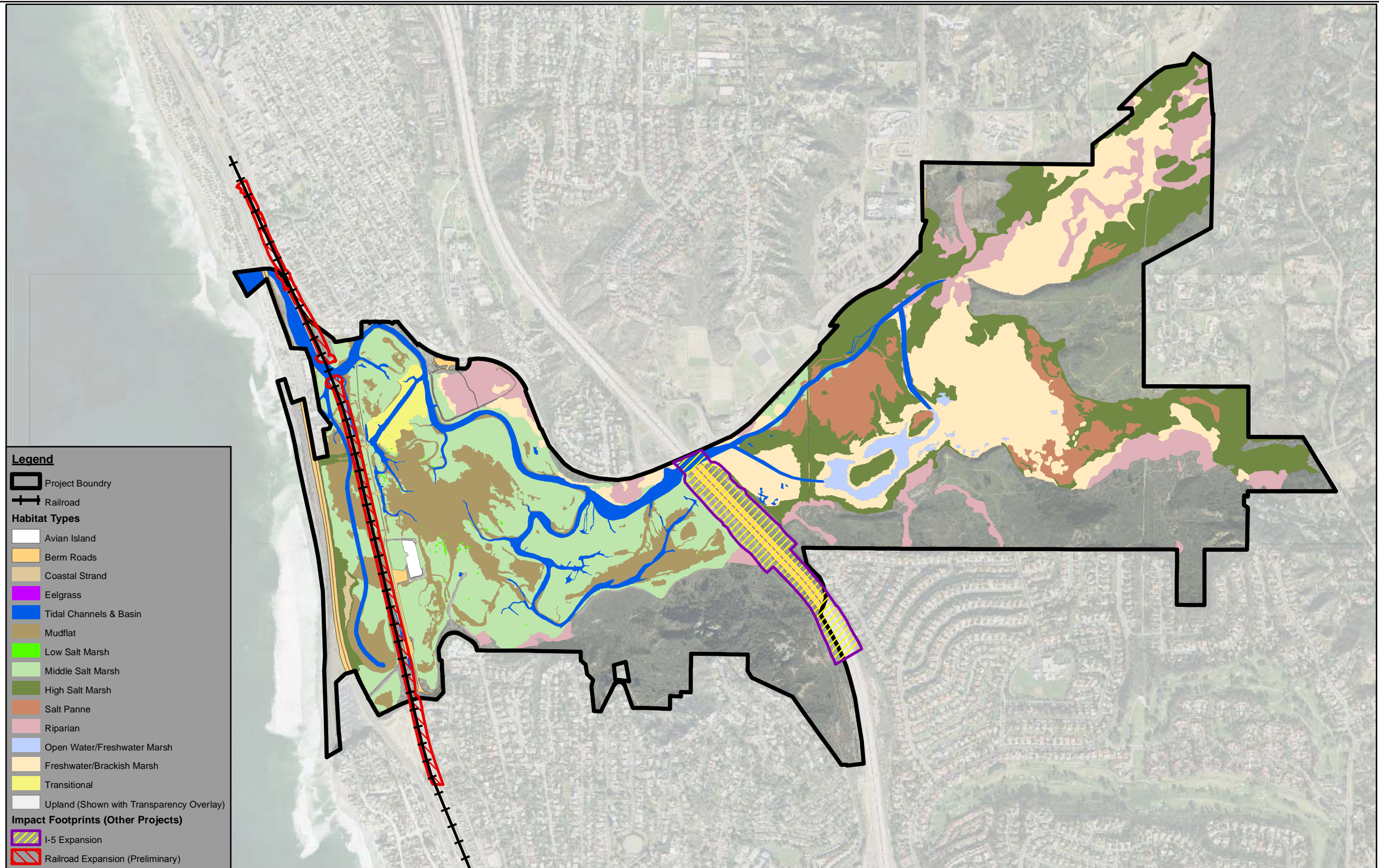
Because dredging would be primarily limited to improving or connecting existing channels under this alternative, no areas large enough to accommodate an overdredge pit would be disturbed and no overexcavation would occur in this scenario. Without an overdredge pit, no large-grained material would be available from dredging; only material unsuitable for reuse as beach or littoral cell nourishment (e.g., fine-grained) would be generated. Approximately 160,000 cy of non-beach-quality material would need to be exported to LA-5, an offshore disposal site located approximately 28 miles southwest of San Elijo Lagoon. Preliminary soil investigations and coordination with the Corps and EPA suggest the material would be appropriate for disposal at LA-5; additional Tier 3 testing and approval from the Corps and EPA would be conducted prior to disposal. Alternative 1A would also utilize some material removed from the site to fill the former sewage settling pond in the central basin (approximately 35,000 cy) and cap it with sand and crushed shell for use as a nesting site.

Inlet maintenance would continue to be performed via existing methods. Approximately 35,000 cy of sediment per year would be removed from the inlet and placed either on the adjacent beach or in the nearshore. The process would take approximately 2 weeks and would be anticipated to occur in spring (typically April).

## **Overall Project Purpose:**

### ***1. Hydraulic Efficiency/Residence Time***

Alternative 1A would improve water residence times and water quality conditions throughout the lagoon. Limited tidal exchange and muted tidal flow would continue to contribute to decreased water quality and stagnant conditions, particularly in the east basin. Under



**Figure 5**  
**Alternative 1A**

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Alternative 1A, residence times in the east basin would improve, but would not be reduced to less than 7 days (Table 6) in a majority of the basin.

**Table 6**  
**Proportion of Sample Sites in Each Basin with**  
**Residence Times Less Than 7 Days under Alternative 1A**

Alternative	West Basin	Central Basin	East Basin
Existing	1/2	6/11	0/5
1A	2/2	8/11	0/5

## **2.    *Water Quality/Eutrophication***

Alternative 1A would remove 5.6 acres (4.8 percent) of this high-nutrient sludge material, and would not meet the one-third removal criteria.

## **3.    *Water Quality/Bacteria***

Under Alternative 1A, high-bacteria conditions in the nearshore would persist for eight days, which would be a 1-day reduction compared to existing conditions.

## **4.    *Habitat Conversion***

With minimal grading/dredging, Alternative 1A would result in a habitat distribution that is heavily weighted toward vegetated wetlands. Existing habitat areas would essentially remain intact, although some freshwater habitat areas in the east basin are anticipated to convert to more saltwater-based communities. Alternative 1A would not halt the ongoing conversion of unvegetated wetland habitats; rapid habitat conversion would continue to occur. Alternative 1A would not achieve improved lagoon hydraulics or water quality conditions (e.g., decreased nutrients, eutrophication, water residence times, bacteria), and would not provide long-term benefits of an improved lagoon system that would result in a connected gradient of balanced habitat types. Alternative 1A would not meet the criteria of halting ongoing conversion of habitats and creating a more stable, connected gradient of balanced habitat types.

Alternative 1A would not meet the overall project purpose as it would not improve residence times to less than 7 days in the majority of each lagoon basin; would not remove at least one-third of high nutrient soils; would not reduce nearshore high bacteria concentrations after storm events to six days or less; and would not halt ongoing conversion of unvegetated wetland habitats.

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**Cost Criteria:** The following cost criteria evaluate practicability of Alternative 1A based on both construction and maintenance:

***1. Construction Cost***

This alternative would be the least expensive. Approximately 160,000 cy of sediment would be disposed of offshore. The lesser quantity would result in a lower cost overall for disposal. Construction costs are anticipated to be approximately \$40 million, which is less than costs associated with similar lagoon/tidal restoration projects (approximately \$42,000 per acre when based on 960 acres). See Table 2 for cost breakdown.

***2. Inlet Maintenance Cost***

Maintenance costs for Alternative 1A would be incurred every year but would utilize equipment similar to that currently used for inlet maintenance. Equipment is readily available (e.g., backhoes/long-arm excavators, dump trucks, and bulldozers) and can access the site via existing roadways. Overall costs for maintenance are anticipated to total approximately \$150,000 annually. The cost is similar to other projects using land-based equipment for inlet maintenance (approximately \$5 per cy removed).

Alternative 1A would incur costs similar to, or lower than, restoration projects with similar construction approaches; therefore, this alternative meets the cost criteria.

**Logistics Criteria:**

***1. Inlet Stability and Maintenance***

With minimal channel dredging and retention of the existing inlet, only a slight increase in tidal prism and tidal range compared to the existing conditions would occur. The flood bar would remain substantially larger than the volume of the ebb bar, similar to existing conditions. The inlet would remain flood dominated, although in the dredged condition, tidal exchange between the lagoon and ocean would be increased over existing conditions. Sediment would continue to be entrained in the inlet in a developing flood shoal that would require removal each year to maintain an open inlet condition with the predicted tide ranges. The necessity for repeated inlet and/or channel maintenance would continue similar to the current inlet condition. Alternative 1A would create a more stable inlet than currently exists with regular maintenance cycles. Approximately 35,000 cy of sediment would require annual removal, slightly more than existing conditions. Alternative 1A would provide an inlet that

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can be maintained consistently open, but would not provide the hydrology required for sustaining proposed habitats and water quality.

## ***2. Local Ordinances, Policies, Adopted Plans, and Federal and State Law***

The project area is identified in City of Encinitas and County of San Diego planning documents as an area to be preserved and protected as open space and passive recreational use. The lagoon would undergo slight changes and restoration relative to the other alternatives and would result in long-term conditions that are generally similar to the existing conditions. The overall existing land use of the lagoon would not change with implementation; it would remain a coastal wetland and open space/reserve area. Restoration activities would be consistent with applicable land use regulations and plans. The continuation of the lagoon land uses would remain compatible with the surrounding areas and would not result in a change or modify land uses in nearby areas (see Section 3.1 of the SELRP Final EIR/EIS [AECOM 2015] for land use discussion).

All restoration, maintenance, and monitoring plans prepared for Alternative 1A would be prepared in accordance with the goals of regional conservation plans, and in consultation with the wildlife agencies. Alternative 1A would be consistent with the goals and objectives of both the MHCP and draft North County MSCP. In addition, Alternative 1A would be in compliance with federal and state laws.

## ***3. Project Phasing***

Construction of Alternative 1A is anticipated to take approximately 9 months, would be constructed in two phases, and would not involve inundation. The need to avoid or reduce impacts through construction phasing under this alternative is minimized due to the relatively small amount of dredging and restoration activities required (see Section 2.10 of the SELRP Final EIR/EIS [AECOM 2015] for project phasing discussion).

Alternative 1A would provide an inlet that can be maintained consistently open but would not provide the hydrology required for sustaining proposed habitats and water quality. Based on the above discussion of the three logistics topics, Alternative 1A would not meet the logistics criteria.

Alternative 1A meets the cost criteria, but would not meet the logistics criteria. Additionally, Alternative 1A is not considered practicable because it would not meet all elements of the overall project purpose. Therefore, this alternative is not carried forward to Section 4.0 of this document for further analysis.

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#### 2.3.1.4 No Project/No Federal Action Alternative

Evaluation required under NEPA of the No Federal Action alternative evaluates the possibility of no federal permit issuance, but allows for some components of the project outside federal jurisdiction to be implemented. Because the SELRP is water dependent and cannot be implemented outside of Corps jurisdictional waters, the NEPA scope of analysis includes the complete restoration project as proposed. No components of the project could be implemented without Corps approval; therefore, the No Project/No Federal Action Alternative is evaluated as a single alternative. The No Project/No Federal Action Alternative is intended to reflect existing conditions plus changes that are reasonably expected to occur in the foreseeable future if the project is not implemented. Under this alternative, there would be no dredging or excavation to improve water quality or tidal circulation, channel clearing, or other comprehensive actions to improve tidal exchange or conveyance of freshwater in high flow conditions. The lagoon inlet would remain in its existing location. Currently, management of the lagoon involves mechanical excavation to maintain a predominantly open inlet condition, as funding allows. This is assumed to continue into the future.

#### Overall Project Purpose:

##### 1. *Hydraulic Efficiency/Residence Time*

Under the No Project/No Federal Action Alternative, there would be no dredging or excavation to improve hydraulic efficiency or reduce residence time. Residence times (Table 7) would remain similar to those under existing conditions.

**Table 7**  
**Proportion of Sample Sites in Each Basin with Residence Times**  
**Less Than 7 Days under No Project/No Federal Action Alternative**

Alternative	West Basin	Central Basin	East Basin
Existing	1/2	6/11	0/5
No Project/ No Federal Action	1/2	6/11	0/5

##### 2. *Water Quality/Eutrophication*

The No Project/No Federal Action Alternative would not result in the removal of any sediment responsible for eutrophication, and would not reduce the nutrient load within the lagoon.



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### **3. *Water Quality/Bacteria***

Under the No Project/No Federal Action Alternative, high-bacteria conditions would persist for 9 days (no reduction).

### **4. *Habitat Conversion***

As described above, rapid habitat conversion has occurred within the lagoon, with a gain of 13 acres of low-marsh (cordgrass-dominated) habitat and a direct loss of mudflat observed between 2010 and 2012. Under the No Project/No Federal Action Alternative, the conversion of another 34 acres of mudflat is anticipated as the lagoon moves toward a state of equilibrium with current water levels and inundation frequencies. Thus, this alternative would not halt the ongoing conversion of unvegetated habitat types within the lagoon.

**Cost Criteria:** The following cost criteria evaluate practicability of the No Project/No Federal Action Alternative.

#### **1. *Construction Cost***

This alternative would not include any construction.

#### **2. *Inlet Maintenance Cost***

Maintenance costs for the No Project/No Federal Action Alternative would be the same as those currently incurred for inlet maintenance. Annual inlet maintenance costs total approximately \$120,000 annually. The cost is similar to other projects using land based equipment for inlet maintenance (approximately \$5 per cy removed).

### **Logistics Criteria:**

#### **1. *Inlet Stability and Maintenance***

The No Project/No Federal Action Alternative would not increase the tidal inlet or channels within the lagoon, nor would it provide increased inlet stability over existing conditions or provide the hydrology required for sustaining proposed habitats and water quality. The practice of active management at the lagoon inlet is expected to continue to maintain tidal exchange with the ocean and allow fluvial flows to exit the lagoon. This exchange, although limited by the existing hydraulic constraints in the lagoon, maintains more acceptable water quality levels in the lagoon than would occur under no management.

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## **2. *Local Ordinances, Policies, Adopted Plans, and Federal and State Law***

The project area is identified in City of Encinitas and County of San Diego planning documents as an area to be preserved and protected as open space and passive recreational use. The No Project/No Federal Action Alternative would not alter the lagoon's use or function in a manner inconsistent with applicable regulations and laws or existing and future local land use plans. This alternative would not result in conflicts with existing land use regulations or policies (see Section 3.1 of the SELRP Final EIR/EIS [AECOM 2015] for land use discussion). Neither the MHCP nor the North County MSCP would be applicable to this alternative; however, the No Project/No Federal Action Alternative would be in compliance with federal and state laws.

## **3. *Project Phasing***

There would be no phasing required for the No Project/No Federal Action Alternative.

The No Project/No Federal Action Alternative would not be subject to the cost or logistics criteria because there would be no cost threshold or modification of logistics to evaluate. Additionally, the No Project/No Federal Action Alternative would not achieve the overall project purpose of enhancing and restoring the physical and biological functions and services of San Elijo Lagoon. Therefore, the No Project/No Federal Action Alternative is not practicable and is not carried forward for analysis in Section 4.0 of this document.

### **2.3.2 SUMMARY OF PRACTICABILITY**

Project alternatives were screened for practicability based on achieving the overall project purpose, cost, and logistics criteria. As detailed above, the overall project purpose and logistics criteria consisted of evaluation of the potential to provide greater inlet stability that can provide the hydrology required for sustaining proposed habitats and water quality, a stable connected gradient of balanced habitat types, improved water quality and residence time, removal of high-nutrient sediments, and reduced bacteria levels. The cost criteria consisted of evaluation of both construction costs and inlet maintenance costs. Table 8 summarizes the evaluation of each alternative to the established practicability criteria. Based on the above practicability analysis, Alternative 2A and Alternative 1B – Refined are considered practicable. Impacts of Alternatives 2A and 1B – Refined on the physical, chemical, and biological components of the aquatic environment are presented and discussed in Section 4.0 of this document.

**Table 8**  
**Practicability of On-Site Alternatives Including**  
**Overall Project Purpose, Cost, and Logistics Criteria**

<b>Practicability Criteria</b>	<b>Alternative 2A</b>	<b>Alternative 1B- Refined</b>	<b>Alternative 1A</b>	<b>No Project/No Federal Action Alternative</b>
<b>Overall Project Purpose</b>				
Residence Time in east basin <7 days	5/5	3/5	0/5	0/5
Remove ≥33% (38 acres) of nutrient rich sediment	59% (68.4 acres) removed	47% (54.8 acres) removed	5% (5.6 acres) removed	0% (0 acre) removed
Reduce nearshore bacteria concentrations to ≤6 days	1 day	6 days	8 days	9 days
Halt habitat conversion	Halted	Halted	Not Halted	Not Halted
Meets Overall Project Purpose (Yes/No)	Yes	Yes	No	No
<b>Cost Criteria</b>				
Construction Cost ≤\$100,000/acre	\$156,217/acre	\$78,108/acre	\$31,667/acre	N/A
Inlet Maintenance Costs ≤\$10/cy	\$10/cy	\$5/cy	\$5/cy	\$5/cy
Meets Cost Criteria (Yes/No)	Yes	Yes	Yes	Yes
<b>Logistics Criteria</b>				
Consistently Open Inlet- Maintained Habitat	Yes	Yes	No	No
Complies with regulations and laws	Yes	Yes	Yes	Yes
Utilize construction phasing	Yes	Yes	Yes	N/A
Meets Logistics Criteria	Yes	Yes	No	No
Practicable Alternative?	Yes	Yes	No	No

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## 3.0 EXISTING CONDITIONS

### 3.1 GENERAL DESCRIPTION

San Elijo Lagoon is a coastal wetland formed where Escondido and La Orilla creeks meet the Pacific Ocean in the City of Encinitas, San Diego County, California. The project study area is composed of approximately 960 acres, primarily within the Reserve, including the lagoon. The lagoon is separated into four basins, or areas: east basin, central basin, west basin, and coastal area. The lagoon provides habitat for sensitive, threatened, and endangered plants and animals, including resident and migratory wildlife.

#### 3.1.1 WATERS OF THE U.S.

A summary of the jurisdictional waters of the U.S. occurring within the survey area is provided in Table 9 and Figure 6.

**Table 9**  
**Summary of Jurisdictional Waters Occurring within the Survey Area**

Type of Jurisdictional Waters of the U.S.	Type of Habitat	Type of Habitat	Area of Aquatic Resource (acres)
<b>Jurisdictional Waters of the U.S.</b>			
Wetland	Southern Coastal Brackish Marsh (52200)	Estuarine; Intertidal; Emergent, Persistent, Regularly Flooded, Mesosaline	131.4
Wetland	Southern Coastal Salt Marsh (52120)	Estuarine; Intertidal; Emergent, Persistent, Regularly Flooded, Mixohaline	262.1
Wetland	Disturbed Wetland (11200)	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	1.2
Wetland	Sandbar Willow Scrub (63000)	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	8.9
Wetland	Southern Willow Scrub (63320)	Palustrine; Scrub/Shrub Broad-leaved, Deciduous, Seasonally Flooded, Fresh	61.0
Other Waters	Drainage Features/ Nonvegetated Channel (64200)	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Fresh	0.6 (3,640 linear feet)
Tidal Waters	Open Water/Subtidal Estuary (64131)	Estuarine; Subtidal; Unconsolidated Bottom, Mud, Mixohaline	40.2
Other Waters	Open Water/Salt Panne (64300)	Palustrine; Unconsolidated Bottom; Mud, Temporarily Flooded Saturated, Hyperhaline	37.0
Tidal Waters	Open Water/Tidal Mudflat (64200)	Estuarine; Subtidal; Unconsolidated Bottom, Mud, Regularly Flooded, Mixohaline	75.8
<i>Total Jurisdictional Waters of the U.S.</i>			<i>618.2</i>

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#### **3.1.1.1 Nonwetland Waters**

Formal delineations for waters of the U.S. in the form of other nonwetland waters were based on field indicators to define and identify the lateral extent of the ordinary high water mark (OHWM). Detailed information regarding the determination of the OHWM can be found in the jurisdictional wetland delineation report (AECOM 2012; Appendix G of the SELRP Final EIR/EIS). Nonwetland waters within the project area include palustrine and riverine waters (Figure 6). Total palustrine nonwetland waters of the U.S. present in the project area is 37.0 acres. Total riverine nonwetland waters of the U.S. present in the project area is 0.6 acre.

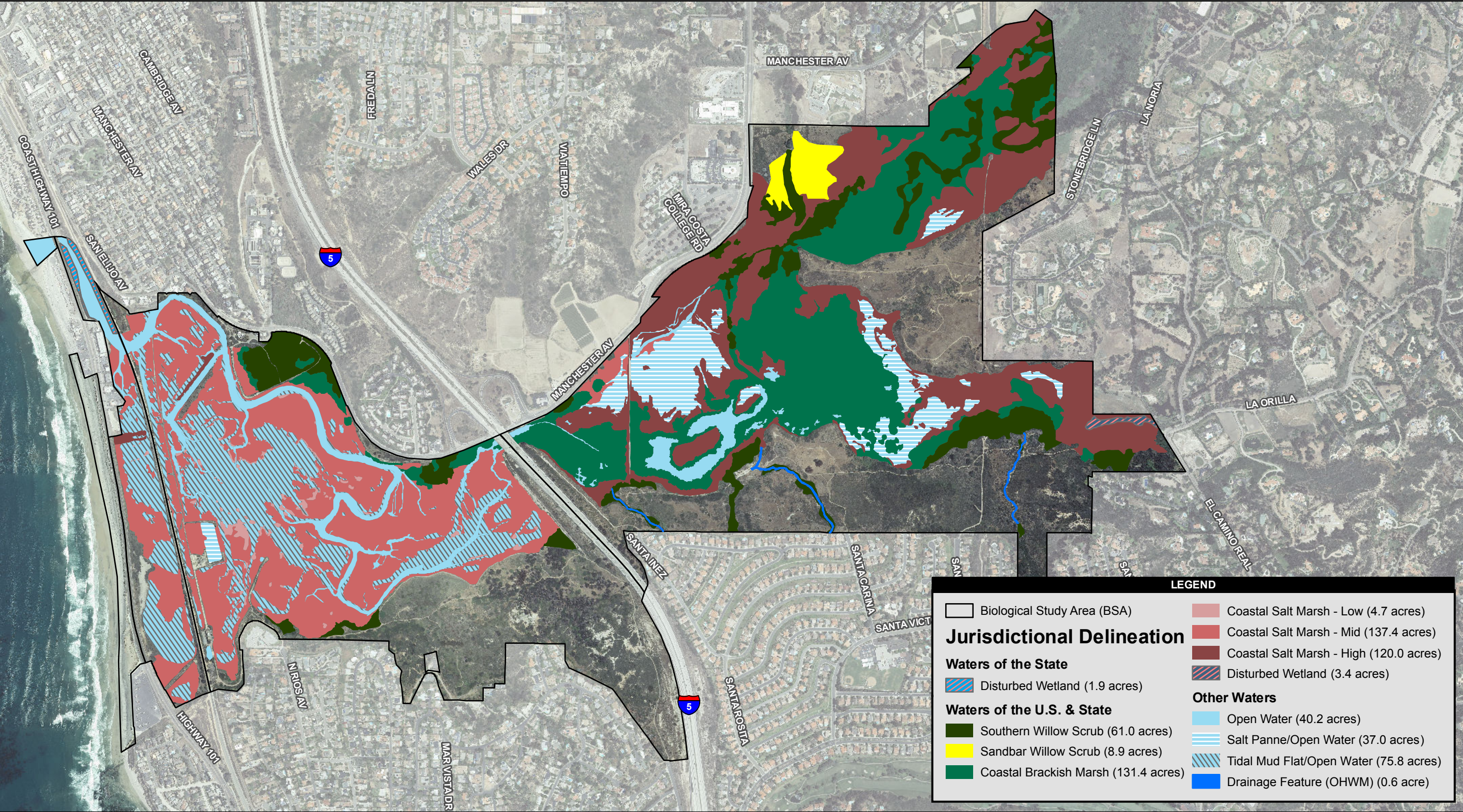
#### **3.1.1.2 Tidal Waters**

Formal delineations for waters of the U.S. in the form of nonwetland tidal waters were based on field indicators to define and identify the lateral extent of the mean high tide line (MHTL). Detailed information regarding the determination of the MHTL can be found in the jurisdictional wetland delineation report (AECOM 2012; Appendix G of the SELRP Final EIR/EIS). Tidal waters of the U.S. present in the project area total 116.0 acres.

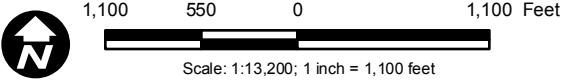
#### **3.1.1.3 Wetlands**

Formal delineations for waters of the U.S. in the form of wetlands were based on the three-parameter method, which requires the simultaneous presence (co-occurrence) of wetland hydrology, hydric soil, and hydrophytic vegetation for an area to be classified as a wetland. The three-parameter method for identifying and delineating wetlands is outlined in, and in accordance with, federal guidance and procedure following the *Corps of Engineers Wetlands Delineation* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Environmental Laboratory 2008). Positive indicators for all three wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were present throughout the project area during field investigations conducted by AECOM (AECOM 2012). Hydrophytic vegetation was dominant within the wetland areas. The vegetated wetlands comprise approximately 464.6 acres of the project area.





Source: SANDAG 2012; AECOM 2014



**Figure 6**  
**Jurisdictional Waters in BSA**



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### **3.1.2 CONDITION OF JURISDICTIONAL RESOURCES**

#### **3.1.2.1 CRAM Overview**

The State of California and federal agencies that compose the California Wetlands Monitoring Workgroup (CWMW) are promoting the use of rapid assessment methods as a core tool to evaluate aquatic resource conditions. In restoration, California Rapid Assessment Method (CRAM) is often used as a tool along with other more quantitative (Level III) data to determine project impacts, assess baseline conditions, evaluate potential increase in wetland condition following restoration, and compare restoration site locations and alternatives. CRAM is a Level II assessment based on the EPA's three tier monitoring structure and is intended to be used in concert with more intensive Level III (e.g., vegetation transects, bird counts, Index of Biotic Integrity, etc.) assessments. It was used as one tool to evaluate the current wetland condition of the project area, as well as the expected increase in wetland condition associated with restoration. Currently, CRAM is the most widely used wetland rapid assessment in the State of California ([www.cramwetlands.org](http://www.cramwetlands.org)) and is intended to provide a rapid and repeatable assessment method that can be used routinely for wetland monitoring and assessment throughout the state. For the purposes of CRAM, condition is defined as the state of a wetland assessment area's physical and biological structure, the hydrology, and its buffer and landscape context relative to the best achievable states for the same type of wetland.

The final CRAM score for each assessment area (AA) is composed of four main attribute scores (Buffer and Landscape, Hydrology, Physical Structure, and Biotic Structure), which are based on the metric and submetric scores (a measurable component of an attribute) (Table 10). The anticipated relationships between the CRAM attributes and metrics, and various ecological services expected from conceptual models of wetland form and function are presented in Table 11. The CRAM practitioners assign a letter rating (A–D) for each metric/submetric based on a defined set of condition brackets ranging from an “A” as the theoretical best case achievable for the wetland class across California to a “D,” the worst case achievable. Each metric condition level (A–D) has a fixed numerical value (A=12, B=9, C=6, D=3), which, when combined with the other metrics, results in a raw score for each attribute. That number is then converted to a percentage of the maximum score achievable for each attribute and represents the final attribute score ranging from 25 to 100 percent. The final overall CRAM score is the sum of the four final attribute scores, ranging from 25 to 100 percent.

**Table 10**  
**CRAM Attributes and Metrics**

Attributes		Metrics and Submetrics
Buffer and Landscape Context		Aquatic Area Abundance
		Buffer:
		Percent of Assessment Area with Buffer
		Average Buffer Width
		Buffer Condition
Hydrology		Water Source
		Hydroperiod
		Hydrologic Connectivity
Structure	Physical	Structural Patch Richness
	Biotic	Topographic Complexity
		Plant Community Composition:
		Number of Plant Layers
		Number of Codominant Species
		Percent Invasion
		Horizontal Interspersion and Zonation
		Vertical Biotic Structure

Source: CWMW 2013

**Table 11**  
**Expected Relationship among CRAM Attributes, Metrics, and Key Services**

Attributes		Buffer and Landscape Context	Hydrology			Physical Structure		Biotic Structure				
Metrics or Submetrics		Buffer and Landscape Connectivity Metrics	Water Source	Hydroperiod	Hydrologic Connectivity	Structural Patch Richness	Topographic Complexity	Number of Plant Layers	Number of Codominant Species	Percent Invasion	Horizontal Interspersion	Vertical Biotic Structure
<b>KEY SERVICES</b>	Short- or long-term surface water storage	√		√	√	√	√				√	√
	Subsurface water storage		√	√	√		√					
	Moderation of groundwater flow or discharge	√	√									
	Dissipation of energy					√	√	√			√	√
	Cycling of nutrients	√		√	√	√	√	√	√	√		√
	Removal of elements and compounds	√		√	√		√	√			√	
	Retention of particulates			√	√	√	√	√	√		√	
	Export of organic carbon			√	√			√		√	√	√
	Maintenance of plant and animal communities	√		√	√	√	√	√	√	√	√	√

Source: CWMW 2013

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As mentioned above, CRAM can be used as one tool to assess the potential for improvements to wetland condition following restoration by comparing baseline conditions to projected future condition scores. A baseline CRAM assessment of San Elijo Lagoon was performed in 2010. Post-restoration scores were projected for each alternative to allow for comparisons across the alternatives. The overall baseline CRAM score, as well as the four attributes for the baseline assessment, are discussed below. The projected changes to wetland condition per CRAM criteria are discussed in Section 4.0 of this document. Preexisting conditions (i.e., existing development and infrastructure) may constrain the improvement of certain metrics, resulting in a lower maximum score obtainable for enhancement or restoration projects. In addition, a metric score of A is not achievable for every wetland (even undisturbed systems), due to the natural constraints associated with each system.

### **3.1.2.2 Total CRAM Scores**

The San Elijo Lagoon Conservancy (SELCO) evaluated the baseline wetland condition of the project study area in 2010 utilizing the most current version of CRAM at that time, version 5.0.2 (Collins et al. 2008). Since that time, the method has continued to be modified by the Level 2 committee of the CWMW in an effort to improve the accuracy and precision of the tool (current version 6.1). Two wetland classification subtypes, as defined in CRAM, were identified within the project study area: estuarine and depressional. The distinction between the two CRAM wetland types was dictated by the tidal influence, with the CDFW dike acting as a tidal barrier to most of the east basin. A total of 25 AAs were evaluated, including 20 estuarine AAs and five depressional AAs (7). To select the final AAs, all possible 1-hectare AAs within the project study area were mapped (total sample universe), and a random subset of AAs was identified for each of the three basins (west, central, and east). The quantity of AAs sampled per basin was proportional to the overall area of each basin, with three AAs in the west, 15 in the central, and seven in the east. The east basin is the only location where two different modules were required, as hydrology transitions from tidally driven near the CDFW dike to depressional east of the dike. The easternmost AA (AA 36) that was still considered primarily influenced by tidal hydrology occurred immediately east of the CDFW dike (Figure 7). All AAs east of that point were classified as depressional, as their hydrology is driven by overland flows from the two drainages that enter the east basin (Escondido Creek and La Orilla Creek) and then pond behind the CDFW dike. Ultimate AAs were selected per Section 3.5 of the CRAM manual (Version 5.0.2), and associated Buffers and Landscape Connectivity areas were evaluated prior to conducting the surveys.

Each AA was surveyed by trained SELCO practitioners, Barry Lindgren and Amy Trujillo, based on the CRAM Field Book, defining the process and providing the narratives that ultimately translate into scores. The survey of San Elijo Lagoon was performed during December 2009 and

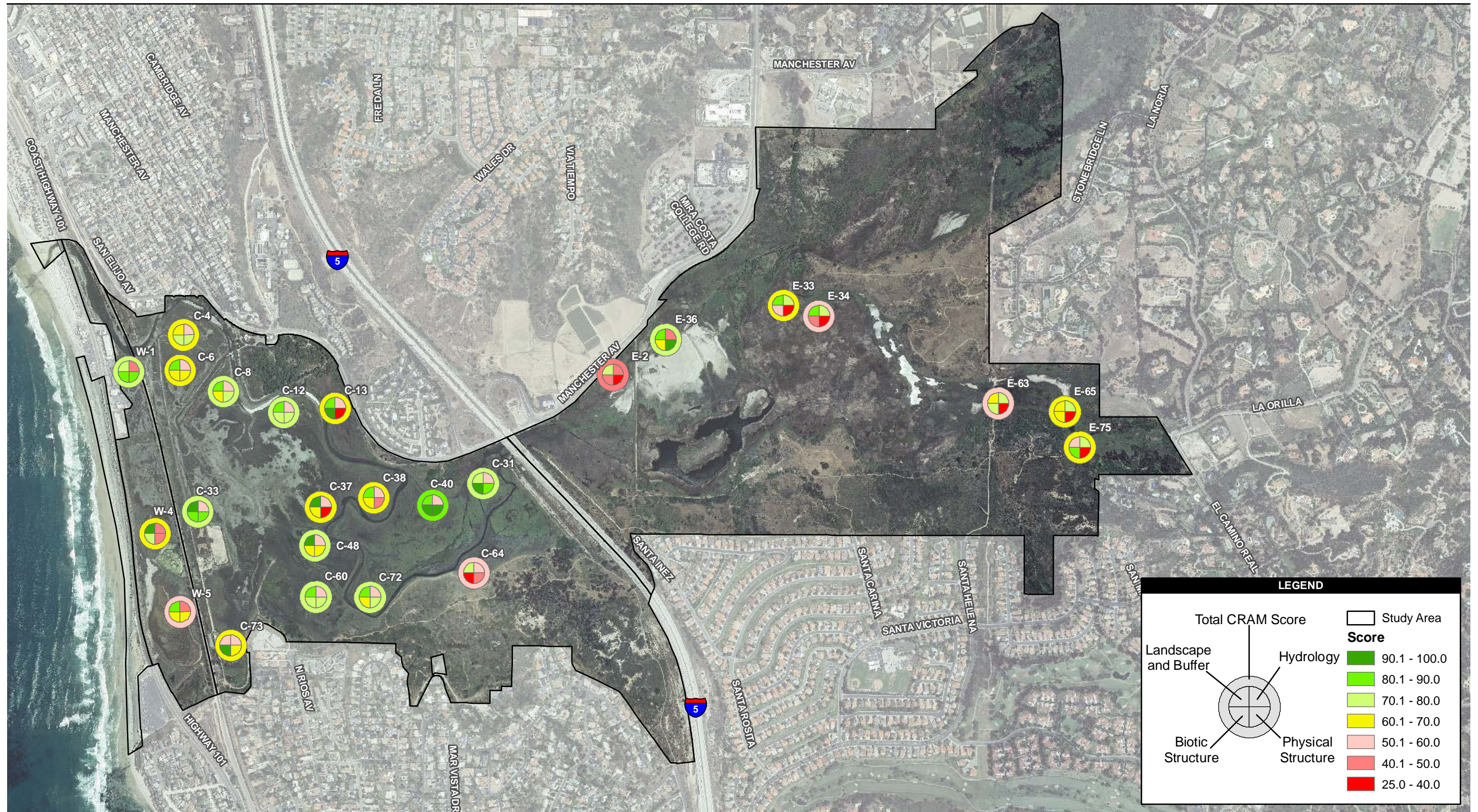
January 2010. The CRAM metric and attribute data for all 25 AAs are presented in Attachment A and summarized in Table 12. In addition, Figure 7 provides a visual depiction of the spatial distribution of the AAs and their specific total CRAM scores as well as the attribute scores. The median total CRAM score for the project study area was 68 for all AAs or 70 for just the 20 estuarine AAs. The lowest overall CRAM score (49) was for one of the east basin estuarine AAs (AA02) just west of the CDFW dike. The highest score (84) was for one of the estuarine AAs in the central basin, AA40. When looking at the trends in the attribute scores, the AAs in the west and central basins tend to score higher in the Buffer and Landscape attribute (>80) as well as the Biotic attribute (>74), which is likely attributable to the location of the AAs relative to the larger lagoon system as well as the tidal influence in these basins. Similarly, the estuarine AAs in the east basin also score highest in the Buffer and Landscape attribute (>77) but low in the Hydrology and Biotic Structure attributes, which is likely associated with the eastern extent of the tidal influence. The depressional AAs in the east basin score highest in the Buffer and Landscape attribute (70) and the Hydrology attribute (75), with very low scores in Physical Structure (32 average).

**Table 12**  
**Average Attribute and Total CRAM Scores**  
**for the Project Study Area and by Basin**

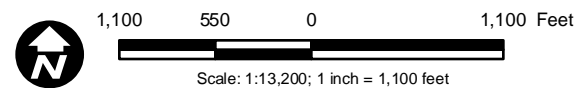
Attributes	Study Area	West Basin	Central Basin	East Basin		
				All	Estuarine	Depressional
Buffer and Landscape Connectivity	80	83	83	73	78	71
Hydrology	61	50	58	65	42	75
Physical Structure	60	54	68	43	69	33
Biotic Structure	70	76	74	63	56	66
<b>Overall CRAM SCORE</b>	<b>68</b>	<b>66</b>	<b>71</b>	<b>61</b>	<b>61</b>	<b>61</b>

The metrics contributing to these attribute scores and the trends for each attribute are discussed further below. Figure 8 presents the distribution of all metric and submetric scores for the 25 AAs based on the proportion of the total AAs sampled.





Source: SANDAG 2012; AECOM 2014



San Elijo Lagoon Restoration Project Draft 404(b)(1) Alternatives Analysis

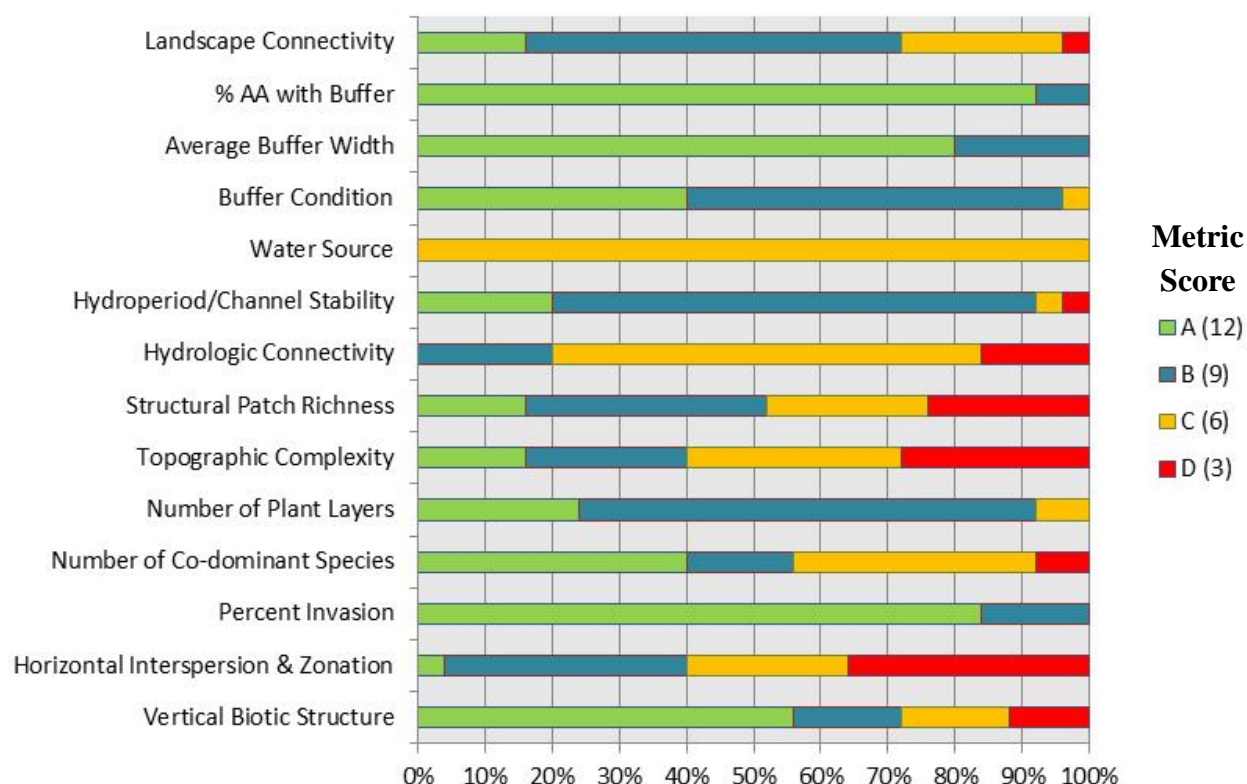
Path: P:\2009\09080064\_SELRP\_EIR\6.0 GIS\6.3 Layout\CRAM\CRAM\_Results.mxd, 8/6/2014, steinb

**Figure 7**  
**Spatial Distribution of CRAM Index and Attribute Scores**



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A–D = Metric Condition Level

**Figure 8. Distribution of Metric/Submetric Scores Based on the Percent of Sites (N=25)**

### 3.1.2.3 Buffer and Landscape Context

Relative to the other attributes measured by CRAM, the Buffer and Landscape attribute scored the highest in both estuarine and depressional AAs. This attribute evaluates the AA at a larger landscape scale and specifically addresses the AA’s proximity to other aquatic resources (Aquatic Area Abundance), as well as the buffer immediately abutting the AA. It is assumed that wetlands close to each other have a greater potential to interact ecologically and hydrologically, and that such interactions are generally beneficial. The buffer on the other hand, provides protection to the AA itself from outside stressors and performs such functions as filtering pollutants, providing refugia for wildlife, acting as barriers to people and predators, and preventing invasion by exotic species. The ability for a buffer to provide these services is evaluated in CRAM using three submetrics: Percent of AA with a Buffer, Average Buffer Width, and Buffer Condition. The average Buffer and Landscape attribute score for the estuarine AAs is 82.68, which is a moderately high score, while the depressional AAs averaged 70.80. The primary difference in attribute score between the two wetland types is likely a result of their geographic location within the lagoon. The depressional wetlands are concentrated in the east basin where there is

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lower coverage of aquatic resources; this results in a lower Aquatic Area Abundance score for those AAs.

For the Buffer submetrics, geographic location continues to play a role; however, the difference is not distinct by wetland type. As shown in Figure 8 and Attachment A, most of the AAs (over 90 percent) received an A (the highest possible score, which equals 12) for Percent of AA with Buffer, which equates to a 75–100 percent buffer, while the remaining AAs that occur in proximity to urban development, primarily the transportation corridors, received a B (50–74 percent buffer and equals 9). A very similar pattern occurs with scoring for Buffer Width, with 80 percent of the AAs scoring an A and the remaining receiving a B where development encroaches into the 250-meter buffer area. The majority of the AAs scored an A (40 percent of the AAs) or a B (56 percent of the AAs) for Buffer Condition, with only one AA receiving a C score. This indicates the buffer areas have minimal nonnatives, and no soil disturbance, and human visitation is concentrated on the periphery along trails. The differences in Buffer Condition scores for AAs are generally due to different degrees of human use and percentage of nonnative vegetation within the buffer areas.

#### **3.1.2.4 Hydrology**

Average scores for the Hydrology attribute were much higher for the depressional AAs than for the estuarine AAs. The Hydrology attribute evaluates the hydrologic context of the AA, including Water Source, Hydroperiod, and Hydrologic Connectivity metrics. The first metric assessed is Water Source, which evaluates water that directly affects the extent, duration, and frequency of the hydrological dynamics within an AA. This metric is assessed based on water sources that affect the hydrology of the AA, which is most apparent in the dry season and looks at both additional artificial inputs (urban runoff) and diversions (dams and drop structures). The second metric is Hydroperiod, which is the characteristic frequency and duration of inundation or saturation of a wetland during a typical year. For estuarine wetlands, Hydroperiod is governed by the tides, while for depressional wetlands, Hydroperiod is governed by diurnal increases in evapotranspiration and seasonal cycles of rainfall, runoff, and specialized management practices. The final metric is Hydrologic Connectivity, which describes the ability of water to flow into or out of a wetland, or a wetland's ability to accommodate rising floodwaters without dramatic changes in water level that can result in stress to wetland plants and animals. This metric is assessed at the wetland scale, looking at the portion of the wetland that includes the AA within 500 meters.

The average Hydrology attribute score for the depressional AAs was 75.00, the highest of the four attribute scores across the project study area, while the average score for the estuarine AAs was 55.42, the lowest of the four attribute scores. For the estuarine AAs, the central basin had the highest average attribute score, (58.33), with the west basin having the second highest average



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attribute score (50.00), and the east basin having the lowest average attribute score (41.67). The primary difference in attribute scores between the two wetland types is driven by the Hydroperiod metric, with the estuarine AA scoring lower as a result of tidal muting by the mouth as well as the effects of I-5 and the CDFW dike. The depressional AAs all scored high as they predominantly fill and drawdown naturally. In addition, the Hydrologic Connectivity metric, which evaluates the transitional slope from wetland to upland, further differentiated the estuarine and depressional wetlands. This difference was driven by geographic location, as the majority of the depressional wetlands are in the eastern portion of the east basin where transition between wetland and upland is predominantly natural with little infrastructure development affecting the perimeter of the wetland. Conversely, the estuarine AAs occur in the central and western portions of the east basin where roads, freeways, and railways have resulted in steeper slopes and abrupt transitions from wetland to upland.

All of the AAs received a score of C for the Water Source metric, as freshwater sources that affect the dry season conditions of all the AAs are primarily dominated by artificial hydrology, as indicated by the urban development that comprises well over 20 percent of the immediate upstream drainage basin of the lagoon. The majority of the estuarine AAs (90 percent) scored a B for the Hydroperiod metric as a result of tidal muting associated with the inlet. The two estuarine AAs in the east basin scored a C and a D, respectively, as a result of their proximity to I-5 and the CDFW dike, which further restricts the daily tidal exposure of each AA. All of the depressional AAs scored an A for this metric as the filling and drawdown of water occurs on a natural cycle. Eighty percent of the estuarine AAs scored a C for the Hydrologic Connectivity metric while the remaining scored a D. The scores for this metric are driven by the proximity of each AA relative to the infrastructure surrounding the lagoon. Those AAs closest to the railroad, Manchester Avenue, and I-5 score lowest as the transition from wetland to upland is steep as a result of the artificial grade control. All of the depressional AAs scored a B for this metric, which is once again associated with their geographic location within the lagoon.

### **3.1.2.5 Physical Structure**

The Physical Structure attribute scores were higher for the estuarine AAs than the depressional AAs (Table 13). This attribute includes two metrics, which assess the structural patch richness and topographic complexity of the AAs. Patch Richness refers to the number of different types of physical surfaces or features that may provide habitat for aquatic, wetland, or riparian species. The various patches possible for each wetland are unique for each wetland type, as shown in Table 13. Most of these patches are transient in nature and may or may not occur at any given time. In addition, not all patches are expected for any given system. The second metric, Topographic Complexity, assesses the micro- and macro-topographic relief and variety of elevations within a wetland due to physical features and elevation gradients that affect moisture

gradients or that influence the path of flowing water. The average attribute score for the estuarine AAs was 65.63, the third highest of the four attribute scores, and the average score for the depressional AAs was 32.50, the lowest of all four attribute scores. The higher scores for the estuarine AAs are due to the greater physical structural complexity of these areas in both metric scores. The higher score for estuarine AAs is likely a result of the continued exposure to the tides as complex hydrology often results in the creation of micro- and macro-topography. Although the estuarine AAs on a whole scored higher than depressional AAs, there was still a wide range of scores for all metrics for the estuarine AAs, with AAs falling into all four scoring bins. This was unlike depressional AAs, which either received a C or D for either of the two Physical Structure metrics.

**Table 13**  
**Possible Patches for Estuarine and Depressional Wetlands**

<b>STRUCTURAL PATCH TYPE</b>	<b>Depressional</b>	<b>Estuarine</b>
Abundant wrack or organic debris in channel, on floodplain, or across depressional wetland plain	<b>X</b>	<b>X</b>
Animal mounds and burrows	<b>X</b>	<b>X</b>
Bank slumps or undercut banks in channels or along shoreline	<b>X</b>	<b>X</b>
Cobbles and boulders	<b>X</b>	
Concentric or parallel high water marks	<b>X</b>	
Debris jams		<b>X</b>
Filamentous macroalgae or algal mats	<b>X</b>	<b>X</b>
Islands (mostly above high-water)	<b>X</b>	
Large woody debris	<b>X</b>	<b>X</b>
Nonvegetated flats or bare ground (sandflats, mudflats, gravel flats, etc.)	<b>X</b>	<b>X</b>
Open water	<b>X</b>	
Pannes or pools on floodplain		<b>X</b>
Plant hummocks and/or sediment mounds	<b>X</b>	<b>X</b>
Point bars and in-channel bars		<b>X</b>
Pools or depression in channels		<b>X</b>
Secondary channels		<b>X</b>
Shellfish beds		<b>X</b>
Soil cracks	<b>X</b>	<b>X</b>
Standing snag(s) (1 or more at least 3 meters tall)	<b>X</b>	<b>X</b>
Submerged vegetation	<b>X</b>	<b>X</b>
Swales on floodplain or along shoreline	<b>X</b>	
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	<b>X</b>	
Woody vegetation in water	<b>X</b>	
<b>Total Possible Patches</b>	<b>17</b>	<b>16</b>

Source: CWMW 2013 as modified by AECOM

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Twenty percent of the estuarine AAs received an A score for the Structural Patch Richness metric ( $\geq 9$  patches); 45 percent received a B score (6-8 patches); 30 percent received a C score (3-5 patches); and the remaining AA received a D score ( $\leq 2$  patches). All of the depressional AAs received D scores for this metric due to the presence of three or fewer structural patch types within these AAs. Only 20 percent of the estuarine AAs scored an A for the Topographic Complexity metric, with 30 percent scoring a B, 25 percent scoring a C, and 25 percent scoring a D. Of the depressional AAs, 60 percent scored a C for this metric (no bench but micro-topography) and 40 percent scored a D (no bench or micro-topography). The relatively low Topographic Complexity scores indicate that many of the AAs lack extensive micro- and macro-topographic features, which include patches as well as benches and secondary channels.

### **3.1.2.6 Biotic Structure**

The estuarine AAs scored higher than the depressional AAs for the Biotic Structure attribute. This attribute evaluates three metrics—Plant Community, Horizontal Interspersion, and Zonation—as well as Vertical Biotic Structure. The Plant Community metric uses three submetrics: Number of Plant Layers, Number of Co-dominant Species, and Percent Invasion by invasive species. The Horizontal Interspersion and Vertical Biotic Structure metrics assess the horizontal (plan view) and vertical (layer overlap) structural complexity of the vegetation communities within the AA. The average attribute score for the estuarine AAs was 72.50, the second highest of all four attributes. The average score for the depressional AAs was 65.56, the third highest of all the attribute scores. Although the estuarine AAs in the west and central basins had very similar average attribute scores (75.93 and 74.07, respectively), the AAs in the east basin had a much lower average (55.56). The lower attribute scores for the east basin AAs appears to be due to a combination of factors, including lower species richness (number of co-dominants) and biotic structural complexity.

Twenty-four percent of all the AAs scored an A for the Number of Plant Layers submetric, with the majority of the AAs (68 percent) scoring a B, and only 8 percent of the AAs scoring a C. This indicates that the majority of the AAs support at least two or three plant layers. Forty percent of all the AAs received an A score for the Number of Co-dominant Species submetric, 16 percent of the AAs received a B score, 36 percent of the AAs received a C score, and the remaining AAs (8 percent, both in the east basin) received a D score. For the Percent Invasion submetric, the majority of the AAs (84 percent) scored an A and the remaining AAs (16 percent) scored a B, indicating less than 35 percent of the co-dominant species within all the AAs were invasive species. Only one of the AAs was assigned an A for the Horizontal Interspersion metric, 36 percent of all the AAs were assigned a B, 24 percent were assigned a C, and 36 percent were assigned a D. This indicates that the majority of the AAs had a moderate to minimal degree of plan view interspersion (i.e., distinct plant communities/complexes). Over half of the AAs (56

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percent) scored an A for Vertical Biotic Structure, although none of these were depressional AAs. Sixteen percent of all the AAs scored a B for this metric, 16 percent scored a C, and 12 percent scored a D. Overall, there was a wide range of scores for each Biotic Structure metric across both wetland classes. This makes the future prediction following restoration of any given metric at any given location within the lagoon difficult but does indicate that scores in the upper brackets are possible and to be expected.

## **3.2 PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM**

### **3.2.1 SUBSTRATE**

#### **3.2.1.1 Lagoon Soils**

Sediment in the lagoon is characterized as alluvium and colluviums (California Department of Conservation 1996), consisting of unconsolidated silt, clay, sand, and gravel. The Natural Resources Conservation Service (NRCS) Soil Survey (NRCS 2012b) classifies the majority of the west and central lagoon basins as lagoon waters. Other NRCS soil classifications located throughout the southern edge of the lagoon and the east basin generally include:

- Chino silt loam (CkA), saline, 0 to 2 percent slopes: This soil series is found in basins and floodplains at elevations of near sea level to 3,100 feet. These soils formed in alluvium derived from granitic rocks. These soils are poorly drained with slow to very slow runoff potential and moderately slow permeability (NRCS 2014).
- Corralitos loamy sand (CsC), 5 to 9 percent slopes: The Corralitos series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. These soils are somewhat excessively drained with slow runoff potential and rapid permeability (NRCS 2014).
- Corralitos loamy sand (CsD), 9 to 15 percent slopes: The corralitos series is described above.
- Huerhuero loam (HrE2), 15 to 30 percent slopes, eroded: The Huerhuero series forms on marine terraces from calcareous alluvium derived from sedimentary rock. These soils are moderately well drained and consist of loams, gravelly clay loams, and cobbly loams that have a subsoil of clay or gravelly clay over a hardpan of cobbly alluvium. They are found on 0 to 50 percent slopes at elevations ranging from sea level to 600 feet. These soils have a moderate available water capacity.

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### 3.2.1.2 Hydric Soils

Soils within the project area that are listed as hydric by the NRCS, have diagnostic hydric properties and/or features, have hydric inclusions, meet the criteria and/or definition for a hydric soil, or have the potential for being hydric by definition are described below:

- **Chino Soil Series:** The Chino soil series consists of moderately well-drained fine sandy loams derived mainly from granitic rocks. These soils are on alluvial fans and terraces and are found to occupy basins and floodplains at elevations of near sea level to 3,100 feet and have slopes that range from 0 to 5 percent (Bowman 1973; NRCS 2010b). Chino silt loam, saline, 0 to 2 percent slopes, is on the National List of Hydric Soils (NRCS 2010a).
- **Coastal Beaches Soil Land Type:** The Coastal Beaches soil series occurs as gravelly and sandy beaches along the Pacific Ocean where the shore is washed and reworked by ocean waves. Part of this land type is likely to be covered with water during high tide and stormy periods. This soil series supports no vegetation (Bowman 1973).
- **Lagoon Water Soil Land Type:** Although not considered a soil and not mapped as one by the Soil Survey of the San Diego Area, California (Bowman 1973), daily tidal action temporarily removes surface water and exposes layers of mud and estuarine silts, clays, marine animal detritus, and riverine fluvial sediments. This mudflat is within the intertidal zone and is exposed approximately twice daily and can be considered as a land type (when exposed by tidal action). The mudflat occurring within the survey area presents two primary hydric soil features: muck and elevated levels of hydrogen sulfide.

**Tidal Flats Soil Land Type:** The Tidal Flats soil series occurs as level areas that are periodically covered with tidal water. These areas are essentially barren. The higher parts that are seldom covered during high tide support sparse salt-tolerant vegetation. The texture ranges from clay to very fine sand. Typically, this soil has an excess of soluble salts (Bowman 1973).

### 3.2.2 SUSPENDED PARTICULATES/TURBIDITY

Historically, activities occurring throughout the watershed, such as road development, agriculture, construction, and urban runoff, resulted in sediment loading to the lagoon. Escondido Creek and, to a lesser extent, La Orilla Creek, are the historic principal transporters of alluvial sediment. Much of the sediment delivered to the lagoon due to erosion was from past activities when construction and agricultural activities were high; however, the rate of sedimentation has decreased with buildout of the watershed and agricultural areas, as well as the initiation of conservation practices.

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Total suspended solids (TSS), a measure of the sediment load, have been measured during dry and wet weather in San Elijo Lagoon (MACTEC 2009). The results indicate that TSS mean concentrations were highest during high flow wet weather conditions and lowest during winter dry weather conditions.

San Elijo Lagoon is estimated to have a flood shoal volume of 63,300 cy at equilibrium (M&N 2011). Ebb flow velocities through the constricted inlet are insufficient for sediment flushing to maintain an open inlet. In addition, sediment from upstream sources gets trapped in the lagoon as a result of the channel constrictions. The circuitous channel reduces flow rates, allowing sediment to settle into the lagoon. These sediments are primarily fines and have been deposited over a long time span, generally within the east and central basins of the lagoon (USDA 1993).

### **3.2.3 WATER**

Urbanization within the surrounding Escondido watershed has accelerated freshwater storm flows, generated year-round urban runoff, and increased pollutants (i.e., bacteria, nutrients) within the lagoon. The ecological effects of increased runoff have been compounded by water obstructions to and from the Pacific Ocean, including an inefficient channel system and lagoon inlet, a weir in the eastern basin, and the three major transportation corridors that perpendicularly traverse the lagoon: Coast Highway 101, the NCTD railroad tracks, and I-5. These constraints on the hydraulic connection between the ocean and lagoon affect tidal exchange and drainage of freshwater flows. As a result, water surface elevations in the lagoon are different than those of the ocean, and habitat distribution and quality are adversely affected. Such factors have led to a consistent degradation of water quality (e.g., elevated bacteria levels) in the lagoon and adjacent to the lagoon inlet. Water quality issues also occur due to the historic accumulation of nutrients in lagoon sediments, leading to periods of extended eutrophication. Water quality within the lagoon is currently identified under CWA Section 303(d) as impaired for eutrophication, indicator bacteria, and sedimentation (SWRCB 2011).

The San Diego Basin Plan (RWQCB 1994) provides general surface water quality objectives (WQOs) for the San Diego Region. These WQOs are listed below:

- Lagoon dissolved oxygen levels cannot be less than 5.0 milligrams per liter (mg/L) and the annual mean concentration cannot be less than 7 mg/L more than 10 percent of the time. Ocean waters cannot have dissolved oxygen levels less than 10 percent from the normal.
- Changes in normal ambient pH levels cannot exceed 0.2 units in the lagoon.
- Oil and grease cannot be visibly present on surface waters.

- Pesticides cannot be present in the water column, sediments, or biota at concentrations that adversely affect beneficial uses or human health, wildlife, or aquatic organisms.
- Radionuclides cannot be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.
- The suspended sediment load and suspended sediment discharge rate of surface waters cannot be altered that would cause nuisance or adversely affect beneficial uses.
- Waters cannot contain suspended and settleable solids that cause nuisance or adversely affect beneficial uses.
- The natural temperature of a receiving water body cannot be altered unless the alteration can be shown to not adversely impact beneficial uses.

### 3.2.3.1 Coliform Bacteria

Urban runoff and stagnant water conditions contribute to elevated bacteria levels within the lagoon. WQOs related to bacteria are shown in Table 14. The beneficial uses of the lagoon include contact recreation and noncontact recreation.

**Table 14**  
**Applicable Water Quality Objectives for Bacteria**

Water Quality Objectives	Concentrations			
	Individual Sample	10% of Samples	20% of Samples	Average
Contact Recreation	NA	400/100 ml	NA	200/100 ml
Noncontact Recreation	NA	4,000/100 ml	NA	2,000/100 ml
Bays and Estuaries	10,000/100 ml	NA	1,000/100 ml	1,000/100 ml
Shellfish Harvesting	NA	230/100 ml	NA	70/100 ml

ml = milliliters; NA = not applicable  
Source: RWQCB 1994

Indicator bacteria (total and fecal coliform and *Enterococcus*) concentrations were monitored in Escondido Creek and the lagoon (MACTEC 2009). During wet weather, all three indicator bacteria concentrations at the Escondido Creek monitoring station exceeded water quality standards for body contact. Indicator bacteria results within the lagoon also exceeded the standard during the wet weather conditions, although the concentrations were lower than those at the Escondido Creek site. During dry weather conditions, *Enterococcus* and fecal coliform concentrations exceeded the water quality standard in both Escondido Creek and the lagoon, and there were no exceedances for total coliform.



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Wet weather water samples had higher bacterial concentrations than dry weather samples, suggesting that non-point sources are the primary contributors to elevated bacteria concentrations and annual loadings to the lagoon. Also, as wet weather flows contribute between 84 and 98 percent of the total annual flow volume, nearly all of the bacteria loadings into the lagoon are during wet weather storm events. Within the lagoon, concentrations during the winter were the highest. The highest exceedance frequencies were associated with *Enterococcus* and fecal coliform (M&N 2012b).

### **3.2.3.2 Nutrients**

San Elijo Lagoon experiences high nutrient levels due to historical sediment accumulation, poor tidal circulation, long residence times, and stagnant water conditions. The mouth of the lagoon has historically been closed much of the year due to the hydraulic inefficiencies of the current channel network and inlet configuration. As a result, tidal exchange has been limited within the lagoon, resulting in the historical accumulation of fine sediments in the east and central basins of the lagoon (USDA 1993) and water quality issues in the lagoon. Since the 1990s, the SELC has maintained a predominantly open inlet condition. However, muted tidal flow that occurs even under open inlet conditions contributes to decreased water quality and near-stagnant conditions, particularly in the east basin where flushing is most limited. The manual opening of the tidal inlet maintains a degree of tidal flushing; however, poor circulation and water quality issues within the lagoon still exist, particularly if the inlet closes. When the inlet closes, the water column within the lagoon can become eutrophic within a 24-hour period under certain conditions due to the high nutrient load in the historic sediments (McLaughlin 2010).

Studies within the lagoon have shown that historically accumulated nutrients in the sediment are one of the primary causes of eutrophication and low dissolved oxygen levels in the water column (McLaughlin et al. 2010). Much of this high nutrient sediment lies in “sludge beds” created by decades of material discharge from Solana Beach and Cardiff Waste Treatment plants. Although both of these facilities stopped discharging sludge in 1966, high nutrient sediments are still correlated to “sludge beds” mapped shortly after the discharges ceased (Environmental Engineering Lab 1966).

Excessive concentrations of nutrients such as nitrogen and phosphorus can lead to algal blooms that in turn promote eutrophication and low dissolved oxygen levels. Studies have shown that low dissolved oxygen levels leading to water quality issues within the lagoon are predominantly caused by recirculation of the existing sediment nutrient load (Southern California Coastal Water Research Project 2011). Eutrophication leads to fish kills during warm weather and potentially limits the ecological health of species and habitats within the lagoon.

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## ***Phosphorus***

Phosphorus is an essential nutrient for plant and algal growth and can indicate the level of productivity of a water body. The WQO set by the Basin Plan (RWQCB 1994) for total phosphorus is an allowable exceedance of 10 percent. Nutrients were measured in Escondido Creek and within the lagoon (MACTEC 2009). In Escondido Creek, total phosphorus concentrations exceeded the WQO during both dry and wet weather conditions. Within the lagoon, 100 percent of samples exceeded the WQO for total phosphorus during wet weather. During dry weather, between 27 and 92 percent of samples exceeded the WQO.

## ***Nitrogen***

Nitrogen is present in water bodies in several forms. Ammonia is typically found in water with low oxygen concentrations and is the form most readily used by phytoplankton. Bacteria can break down ammonia to form nitrite, which is converted to nitrate. Nitrate is commonly found in surface water. High levels of ammonia can contribute to anoxia and fish kills. Most of the nitrogen in the San Elijo Lagoon consists of ammonia and total nitrogen. The WQO for ammonia is 0.025 mg/L, and for nitrite and nitrate and total nitrogen is an allowable exceedance of 10 percent (RWQCB 1994).

In Escondido Creek, total nitrogen and ammonia exceeded their respective WQOs during both dry and wet weather conditions. Within the lagoon, the mean ammonia concentration exceeded the WQO under both wet and dry weather conditions. The mean concentration during wet weather was 0.04 mg/L. During dry weather, between 55 and 90 percent of samples exceeded the WQO within the lagoon, with mean concentrations ranging from 0.05 mg/L to 0.12 mg/L.

Between 13 to 83 percent of samples collected within the lagoon exceeded the WQO for total nitrogen under both wet and dry weather conditions. During dry weather, between 13 and 58 percent of samples exceeded the total nitrogen WQO (MACTEC 2009). Zero percent of samples exceeded the WQO for nitrite and nitrate under both wet and dry weather conditions.

### **3.2.3.3 Dissolved Oxygen**

Dissolved oxygen is essential to supporting the survival of aquatic life. Nutrient levels affect the dissolved oxygen levels in the water column. High nutrient levels can cause algae growth; algae can affect dissolved oxygen by releasing oxygen during the day, and by respirating and pulling dissolved oxygen out of the water column at night, thus lowering dissolved oxygen levels. During warm temperatures, anoxic conditions have been observed within the lagoon even with an open inlet, presumably due to excess nutrient loads in sediments (Gibson 2013). The San

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Diego Basin Plan (RWQCB 1994) states that dissolved oxygen levels cannot be less than 5.0 mg/L. San Elijo Lagoon had a dissolved oxygen level that fell below the WQO (5 mg/L) between 30 and 50 percent of the time. Most of the dissolved oxygen concentrations that fell below the WQO occurred during the summer and fall (M&N 2012b).

#### **3.2.3.4 Pesticides**

Historical contamination, mainly from agricultural runoff, has resulted in pesticide levels above “Effects Range-Low” (ERL)/“Effects Range-Median” (ERM) objectives in San Elijo Lagoon sediments. Sources of contamination include dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyldichloroethane (DDD), dichlorodiphenyltrichloroethane (DDT), and polychlorinated biphenyls. A chemical analysis of sediments within San Elijo Lagoon showed that most of the tested analytes fell below their respective ERLs (M&N 2013). Only the concentration for DDT in the upper layer of the overdredge pit location in the central basin exceeded its ERM.

#### **3.2.4 CURRENT PATTERNS AND WATER CIRCULATION**

San Elijo Lagoon is a coastal wetland located at the terminus of the Escondido Creek and La Orilla Creek at the Pacific Ocean. San Elijo Lagoon has a relatively narrow connection to the ocean and a confluence of freshwater flows from upstream. Storm water and urban runoff enters the lagoon through Escondido Creek, Orilla Creek, and adjacent neighborhoods. The watershed upstream from the lagoon has been urbanized over the last several decades; as urbanization has increased, urban runoff into the lagoon through these creeks has also increased. Tidal exchange and circulation within the lagoon have been constricted and inefficient for decades at the tidal mouth as well as within the tributary channels in each of the three basins.

The hydrology within San Elijo Lagoon is largely driven by freshwater supplied from the upstream watersheds and ocean tidal fluctuations from along the coast. However, the hydrologic water balance and the circulation dynamics of the lagoon are dependent on the surrounding landform topography and the lagoon bathymetry, as well as conditions that vary seasonally relative to the following:

- Precipitation (watershed drainage and direct rainfall to the lagoon);
- Tidal prism (seawater/brackish water volume circulating into, within, and out of the lagoon);
- Groundwater level and groundwater/surface flow relationships (e.g., groundwater springs and seepage);

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- Urban dry weather runoff;
  - Evaporative water loss due to combinations of temperature, humidity, and wind; and
  - Aquatic and wetland plant transpiration water loss.

San Elijo Lagoon receives approximately 1 million gallons per day of watershed runoff (storm water and urban flows) year-round from Escondido Creek, its tributaries, and the smaller La Orilla Creek prior to discharge into the Pacific Ocean (Gibson 2012). Average annual precipitation ranges from 11 to 15 inches. Prior to urbanization, Escondido Creek was an intermittent creek, but it currently behaves as a perennial creek (CWN 2002) due to dry-weather urban runoff contributions, causing the water balance to become increasingly dominated by freshwater. Fluvial flows continue to be impounded as they enter the lagoon from the upstream watershed. As a result, the lagoon continues to be influenced by freshwater flows that cannot efficiently exit the lagoon, particularly east of I-5 where the CDFW dike impounds the water.

### **3.2.5 NORMAL WATER FLUCTUATIONS**

Several human modifications in addition to increased runoff flows affect water fluctuation within the lagoon, including Coast Highway 101, the NCTD railroad, the CDFW weir, and I-5. These developments have increased water impounding within the lagoon, thereby increasing water elevations and the resistance to tidal forces. Additionally, the inlet of San Elijo Lagoon is often constricted due to coastal processes (beach sand migration and flood shoal development), which requires manual reopening of the mouth each year to improve tidal flushing and lagoon water quality. Once the SELC began maintaining a predominantly open inlet to increase water quality and enhance circulation and drainage within the lagoon, historically impounded water levels dropped throughout the lagoon.

Shoaling at the inlet, coupled with inefficient drainage patterns of the lagoon, suppresses tidal influence on the lagoon, resulting in a muted tide range (M&N 2012a). A muted tide range results from the hydraulic inefficiencies at the inlet in the lagoon, and water fluctuations within the lagoon do not vary as much as the adjacent ocean during a typical tide cycle.

With the maintained inlet, the general water level has been reduced in the lagoon, but the potential for flooding within adjacent areas remains a concern. A large percentage of the lagoon and adjacent areas, particularly to the north of the lagoon, are located within the Federal Emergency Management Agency 100-year or 500-year flood zone. San Elijo Lagoon is a part of the Escondido Creek floodplain. Although located farther upstream in the watershed, Lake Wohlford and Dixon Lake offer some flood control for Escondido Creek and San Elijo Lagoon.

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The current 100-year flood elevations around the east basin and along Manchester Avenue exceed the road elevation by several feet, and are often flooded during moderate storms. Low-lying areas along the floodplains of Escondido Creek and its tributaries can experience flooding during severe rain events that are smaller than the 100-year event. The current 100-year flood elevations around the east basin and along Manchester Avenue exceed the road elevation by 2 to 4 feet, depending on location and analysis approach, and are often flooded during moderate storms. Manchester Avenue lies at an elevation of between 9.3 and 10.4 feet NGVD, and stormflood waters have reached between 12.3 and 13.3 feet NGVD in the lagoon.

### **3.2.6 SALINITY GRADIENTS**

Salinity levels in San Elijo Lagoon range from an ocean salinity concentration of 34 parts per thousand (ppt) to freshwater conditions of less than 5 ppt. Due to poor water circulation and drainage out of the lagoon, the east basin can completely fill with freshwater during a storm event and freshwater conditions can remain for approximately one week following the storm (M&N 2012b). The west basin is closest to the tidal inlet. It experiences greater tidal influence and receives regular mixing between the ocean and freshwater during incoming and outgoing tides, maintaining higher salinity levels during and after storm events. Overall, salinity levels in the lagoon depend on efficient tidal exchange, with better circulation resulting in more rapid salinity recovery. Tidal ranges under existing conditions range from 4.56 feet at Highway 101 to 3.76 feet in the east basin (see Table 3.2-1 of the SELRP Final EIR/EIS for the specific tidal range). For comparison, ocean tidal range is 7.97 feet.

An SELC salinity study (SELC 2002), determined the following:

- Salinity of the freshwater input to the east basin (measured at the CDFW dike culvert) was consistently 1.2 ppt throughout the water column.
- Average salinity in the lagoon was approximately 15 ppt.
- Salinity in the offshore area and the ocean boundary was 34 ppt.

## **3.3 BIOLOGICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM**

### **3.3.1 THREATENED AND ENDANGERED SPECIES**

#### **3.3.1.1 Plants**

Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *Crassifolia*) was the only federally listed plant species found within the biological study area (BSA). Del Mar manzanita occurs in

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chaparral, often with chamise and wart-stemmed ceanothus (*Ceanothus verrucosus*) on eroding sandstone. Del Mar manzanita is found in the Diegan coastal sage scrub/chaparral community in the southern central portion of the BSA, just west of I-5.

### **3.3.1.2 Wildlife**

Federally threatened or endangered species detected on-site during previous studies and are considered resident/breeding within the BSA include coastal California gnatcatcher (*Polioptila californica californica*), California least tern (*Sternula antillarum browni*), western snowy plover (*Charadrius alexandrinus nivosus*), light-footed Ridgway's rail (*Rallus longirostris levipes*), southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*).

#### **Coastal California Gnatcatcher**

Within the BSA, the coastal California gnatcatcher is known to occur within the coastal sage scrub located on the slopes of the BSA. In 2009, gnatcatchers were recorded from 23 locations from within the BSA (Patton 2010). In 2010, gnatcatchers were recorded from 35 locations in the central and east basins (Patton 2012b). In 2011, gnatcatchers were recorded from 35 locations within the BSA (Patton 2012b).

#### **California Least Tern and Western Snowy Plover**

Least terns were observed in very limited numbers and only relatively late in the season in 2011. Two to three were reported on June 12 and five to seven on July 11 foraging throughout the lagoon and nearshore waters and roosting on mudflats in the lagoon. One fledgling was observed along the beach on July 22 and two adults on August 8. No nests were documented in 2011 and no on-ground tern activity was observed on the salt panne east of the east basin dike or in other potential nesting areas (Wolf 2011).

Within the BSA, western snowy plovers are regularly spotted foraging and roosting within mudflats and on the beach. Up to 76 western snowy plover individuals were recorded within the lagoon and adjacent beach area on September 29, 2011 (Patton 2012a). Historically, plovers were recorded nesting within the BSA on the east basin islands and east basin dike. Postbreeding and wintering roosting flocks have been documented at Cardiff State Beach, which is adjacent to the BSA. Roost sites have varied but have included both sides of the mouth of the lagoon. No breeding has been recorded within the lagoon since 2002 (Patton 2010).

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### **Light-Footed Ridgway's Rail**

Within the BSA, the light-footed Ridgway's rail is a year-round resident at San Elijo Lagoon and can be heard calling in the evening, although it is rarely seen. Total number of breeding pairs in the lagoon has ranged from six to 31 over the past 5 years, with 15 breeding pairs recorded both in 2010 and 2011 (Zembal et al. 2011), 31 pairs detected in 2012, and 20 pairs recorded in 2013 (Zembal et. al 2013). Breeding territories are usually focused in brackish marsh adjacent to saltmarsh, flats, and channels in the central basin north of the end of North Rios Avenue and adjacent to the Nature Center, and in the east basin between the CDFW dike and I-5, east of the south end of the dike, north of Santa Carina Street, and along Escondido Creek west of the power lines. In 2013, two pairs were detected in the west and central basins, and the remaining 18 pairs were detected in the eastern basin within the brackish marsh. Further counts detected light-footed Ridgway's rail in 16 locations throughout the BSA.

### **Least Bell's Vireo and Southwestern Willow Flycatcher**

Within the BSA, Least Bell's Vireo has been recorded within southern willow scrub habitat.

Observations of this species within willow scrub near the Nature Center were documented in 2007 (Patton 2010). In addition, breeding pairs were detected upstream of the La Bajada bridge in 2009 (Bache 2009). In 2011, breeding pairs were recorded adjacent to Escondido Creek and Lux Canyon Drainage (Patton 2012b).

Southwestern Willow Flycatcher was observed in the riparian habitat near the Nature Center in the northwestern central basin in May and June of 2002, two in the same area on May 30, 2004, and one individual on June 3, 2007. An individual was also observed along a trail west of El Camino Real on June 11, 2007 (Patton 2010) and one individual was reported along the La Orilla Trail west of El Camino Real on May 15, 2010 (Patton 2012b).

#### **3.3.1.3 Critical Habitat/Essential Fish Habitat**

The BSA contains designated critical habitat for the coastal California gnatcatcher and western snowy plover. California gnatcatcher critical habitat was originally proposed in 2000 and subsequently revised in 2007 by the U.S. Fish and Wildlife Service (USFWS) (72 FR 72009). Approximately 205 acres of coastal California gnatcatcher critical habitat occurs within the BSA.

California gnatcatcher critical habitat occurs primarily within the coastal sage scrub and chaparral upland habitats surrounding the lagoon. The coastal California gnatcatcher critical habitat within the BSA (205 acres) represents 1 percent of the 17,325 acre unit (Unit 3). Primary



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constituent elements (PCEs) for the coastal California gnatcatcher include dynamic and successional sage scrub habitats that provide adequate space for population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging. PCEs may also include non-sage scrub habitats (e.g., chaparral, grassland, and riparian areas) in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting. Of the 205 acres within the BSA, approximately 110 acres contain habitat generally considered suitable for the California gnatcatcher (coastal sage scrub and chaparral). Therefore, a maximum of 110 acres of vegetation within the BSA may contain PCEs necessary to support the species.

Western snowy plover critical habitat was originally proposed in 1995 but was not finalized until 1999 (USFWS 1999). It was subsequently revised as part of the final rule in 2005 (USFWS 2005). In 2012, the critical habitat was once again updated and at that time approximately 15 acres was identified within San Elijo Lagoon and the BSA, including three potential nest sites. PCEs for western snowy plover include sandy beaches and tidally influenced estuarine mud flats. At this time, these three subunits and PCEs associated with western snowy plover are in a degraded state and have not supported nesting plover for the last decade.

### **Essential Fish Habitat**

Estuaries (as mapped by National Oceanic and Atmospheric Administration) are considered an important habitat in the lifecycle of many fish as they often support the early larval and juvenile stages of development when adequate habitat structure is present. San Elijo Lagoon is mapped as essential fish habitat (EFH) for groundfish and as estuarine Habitat Area of Particular Concern (HAPC). As San Elijo Lagoon does not support substantial subtidal habitat, such as rocky reefs or eelgrass, it is likely that the lagoon is currently not playing a critical role in sustaining nearshore fish populations. However, the connection of the protected open water and tidal channels in the lagoon to the open ocean may still play some role in supporting local fish populations.

When the lagoon mouth is open, the project area is likely suitable for four species of finfish—Pacific sardine, Pacific (chub) mackerel, northern anchovy, and jack mackerel—and market squid. Juvenile sardine and anchovy may venture into or be transported to the project area with tidal waters. Highly migratory species, such as tuna, swordfish, and sharks, are not expected to occur in the project area. Local populations of leopard shark and rays may be present as mudflats provide potentially suitable foraging habitat for these bottom feeding species.

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### 3.3.2 FISH, CRUSTACEANS, MOLLUSKS AND OTHER AQUATIC ORGANISMS IN THE FOOD WEB

The open water habitat in the lagoon supports many marine fish and several freshwater or brackish water fish species. Marine fish detected within the BSA include California killifish (*Fundulus parvipinnis*), arrow goby (*Clevelandia ios*), cheekspot goby (*Ilypnus gilberti*), shadow goby (*Quietula ycauda*), yellowfin goby (*Acanthogobius flavimanus*), longjaw mudsucker (*Gillichthys mirabilis*), California halibut (*Paralichthys californicus*), diamond turbot (*Hypsopsetta guttulata*), topsmelt (*Atherinops affinis*), jacksmelt (*Atherinops californiensis*), northern anchovy (*Engraulis mordax*), deepbody anchovy (*Anchoa compressa*), striped mullet (*Mugil cephalus*), California butterfly ray (*Gymnura marmorata*), bat ray (*Myliobatis californica*), spotted sand bass (*Paralabrax maculatofasciatus*), opaleye (*Girella nigricans*), staghorn sculpin (*Leptocottus armatus*), gray smoothhound (*Mustelus californicus*), bay pipefish (*Syngnathus leptorhynchus*), and barred pipefish (*Syngnathus auliscus*). Freshwater or brackish water species detected include carp (*Cyprinus carpio*) and black bullhead (*Ictalurus melas*).

### 3.3.3 OTHER WILDLIFE

The riparian and upland vegetation communities present on-site provide habitat for several reptile and amphibian species. Non-special-status amphibian species detected within the BSA include Pacific treefrog (*Hyla regilla*), bullfrog (*Rana catesbeiana*), pond slider turtle (*Trachemys scripta*), and garden slender salamander (*Batrachoseps major*). Non-special-status reptile species observed within the BSA include California legless lizard (*Anniella pulchra*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Elgaria multicarinata*), tiger whiptail (*Aspidoscelis tigris*), and western rattlesnake (*Crotalus oreganus*).

### Wildlife Corridors/Connectivity

Local corridors allow resident animals to access critical resources (food, water, and cover) in other areas that might otherwise be isolated. A wildlife movement study was not conducted within the lagoon; however, the area is important to local wildlife movement. In general, wildlife species are likely to use habitat in the lagoon for movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

Regional corridors link two or more large areas of natural open space. San Elijo Lagoon is not functioning as a regional corridor. Instead, it is a large area of natural open space connected to Escondido Creek. Escondido Creek links San Elijo Lagoon with other open space habitat in Harmony Grove and the Elfin Forest to the northeast. San Elijo Lagoon is important as it provides a large area of habitat for core populations of sensitive wildlife and plant species.

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## **3.4 SPECIAL AQUATIC SITES**

### **3.4.1 SANCTUARIES AND REFUGES**

As described above in Section 3.3.1.3, San Elijo Lagoon is mapped as EFH for groundfish and as estuarine HAPC. EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Estuaries are considered an HAPC, a subset of EFH, and are considered an important habitat in the lifecycle of many fish as they often support the early larval and juvenile stages of development when adequate habitat structure is present.

### **3.4.2 WETLANDS**

#### **3.4.2.1 Coastal Brackish Marsh**

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots up to 6 feet in height. Coastal brackish marsh is similar to both freshwater marsh and salt marsh, with some plants characteristic of each. Salinity may vary considerably and may increase at high tide or during seasons of low freshwater runoff or both (Holland 1986).

Coastal brackish marsh is most extensive in the eastern half of the BSA. Dominant plants within this community include California bulrush (*Schoenoplectus californicus*) and Olney’s bulrush (*Schoenoplectus americanus*), with these species forming pure stands more characteristic of freshwater marsh in some areas. However, salt marsh species, such as Pacific pickleweed (*Sarcocornia pacifica*), alkali-heath (*Frankenia salina*), Parish’s pickleweed (*Arthrocnemum subterminale*), and salty susan (*Jaumea carnosa*) are dispersed throughout the coastal brackish marsh in varying degrees of abundance. In the eastern half of the BSA, this community appears to be converting to freshwater marsh due to the greater input of freshwater from Escondido creek and the restricted tidal influence.

#### **3.4.2.2 Coastal Salt Marsh**

Southern coastal salt marsh is an association of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a moderate to dense cover and can reach a height of 3 feet. Most species are active in summer and dormant in winter (Holland 1986). Coastal salt marsh plants are distributed along distinct zones depending upon such environmental factors as frequency and length of tidal inundation, salinity levels, and nutrient status (MacDonald 1977). In the higher littoral zone, there is much less tidal inflow, resulting in lower salinity levels, while soil salinity in the lower littoral zone is fairly constant due to everyday annual tidal flow (Adam 1990).

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Within the different littoral zones, species can be segregated with California cordgrass (*Spartina foliosa*) nearest the open water in the low-littoral zone; Pacific pickleweed and saltwort (*Batis maritima*) in the mid-littoral zones; and a richer mixture of species, including alkali-heath and Parish's pickleweed, in the higher littoral zone (Holland 1986). Other characteristic species include coastal saltgrass (*Distichlis spicata*), alkali weed (*Cressa truxillensis*), and salty susan. Within the western portion of the BSA, mid-littoral coastal salt marsh is most expansive, with small islands of California cordgrass (low-littoral salt marsh) dispersed throughout. High-littoral salt marsh is most prevalent in the eastern portion of the BSA.

#### **3.4.2.3 Disturbed Wetland**

Disturbed wetlands are communities dominated by exotic wetland species. These species have invaded sites that had been previously disturbed or are periodically disturbed. Disturbed wetland is restricted to a small area in the far southeastern corner of the BSA and is dominated by the nonnative species, mousehole tree (*Myoporum laetum*).

#### **3.4.3 MUD FLATS**

Tidal mudflats are coastal wetlands that form when mud is deposited by tides or rivers. They are also shallow areas that are submerged too often to become vegetated. Most of the sediment within a mudflat is within the intertidal zone, and thus the flat is submerged and exposed approximately twice daily. Mudflats are typically important regions for wildlife, including invertebrates and migratory birds. The tidal mudflats are mostly surrounded by mid-littoral coastal salt marsh and restricted to the western portion of the lagoon. The tidal mudflats are completely submerged during high tide.

Much of the functional mudflat habitat within San Elijo Lagoon is a result of higher water levels associated with historically impounded water due to a constricted hydraulic connection to the ocean. When the mouth of the lagoon is opened through active maintenance activities, the lagoon is able to drain more efficiently and areas that were historically under water the majority of the time are now exposed more frequently. These areas are becoming vegetated and ceasing to function as mudflats because they are not inundated by tides for long enough to restrict vegetation growth. Due to a change in inundation frequency, habitat within San Elijo Lagoon is rapidly converting from mudflat to low- and mid-marsh (AECOM 2015).

#### **3.4.4 VEGETATED SHALLOWS**

Salt pannes are unvegetated to sparsely vegetated flat, alkaline areas near the coast that are subject to tidal influence. In coastal areas, salt pannes are most often associated with salt marsh

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habitat. While salt pannes can cover relatively large areas, they often occur in a mosaic pattern with more densely vegetated areas within the salt marsh. The paucity of vegetation on salt pannes is apparently due to seasonally high soil salinity levels that prevent colonization by perennial salt marsh species. However, the open substrate associated with salt pannes is available for colonization by short-lived annual species after winter rains temporarily reduce salinity levels (Ferren et al. 1987). The salt panne habitat is most expansive in the eastern half of the BSA, dispersed between southern coastal salt marsh and coastal brackish marsh.

### **3.4.5 RIFFLE AND POOL COMPLEXES**

This habitat type consists of any open water body including lakes, reservoirs, bays, flowing water within a river channel, and small ponds along stream courses. Open water bodies provide important habitat for a variety of aquatic organisms and water fowl. Open water is dispersed throughout the BSA in the form of tidal channels and small basins.

## **3.5 HUMAN USE CHARACTERISTICS**

### **3.5.1 MUNICIPAL AND PRIVATE WATER SUPPLIES**

Designated beneficial uses of the San Elijo Groundwater Basin include agricultural supply and industrial service supply. Agricultural supply includes uses of water for farming, horticulture, or ranching, including irrigation, stock watering, or support of vegetation for range grazing. Industrial service supply refers to uses of water for industrial activities including, mining, cooling water supply, hydraulic conveyance, or fire protection. However, beneficial uses of the aquifer west of I-5 are affected by seawater intrusion, which decreases quality and potential use for the activities described above.

### **3.5.2 RECREATIONAL AND COMMERCIAL FISHERIES**

No recreational or commercial fisheries exist within the San Elijo Lagoon project area.

### **3.5.3 WATER-RELATED RECREATION**

Designated beneficial uses of the San Elijo Lagoon surface waters include contact and noncontact water recreation plus support for estuarine, wildlife, and marine habitat. Beneficial uses of the Pacific Ocean within the Carlsbad Hydrologic Unit include recreation and numerous elements to support wildlife and marine habitat, plus navigation and fishing/shellfish harvesting. Water contact recreation refers to uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not

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limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, and fishing. Water-contact recreation is a designated beneficial use for the surface waters within the project area. Noncontact recreation refers to the uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. Noncontact recreation is also a designated beneficial use of surface waters within the project area. However, within the Reserve, activities including swimming, wading, diving, fishing, watercraft, and other water-based recreation are not permitted within lagoon waters. Section 3.1 of the SELRP Final EIR/EIS provides greater detail regarding existing recreational opportunities within the San Elijo Lagoon project area.

Water-related recreation associated with the beach includes a variety of activities such as walking/jogging, swimming, surfing, stand-up paddle boarding, windsurfing, sunbathing, beach combing, fishing, SCUBA and skin diving, hiking, picnicking, boating, sailing, and bicycling.

### **3.5.4 AESTHETICS**

#### ***Project Vicinity***

Elements that influence the visual environment include topographic features such as landforms, water surfaces, vegetation, wildlife, and man-made features to the landscape such as roads and bridges.

San Elijo Lagoon appears as a large natural feature at a low point, generally bounded to the north and south by the developed suburban hillsides of Solana Beach and Encinitas. The lagoon is a typical coastal wetland of San Diego, with a western connection to the Pacific Ocean and an eastern freshwater source (Escondido Creek). It is traversed by north-south infrastructure improvements, which include Coast Highway 101, NCTD railroad, I-5, and the CDFW dike, that constrain water flow and affect vegetation type. In addition, these infrastructure improvements present strong linear elements to viewers such as drivers on roads, hikers on lagoon trails, visitors at the Nature Center, and residences on the hillsides to the north and south. Generally west of I-5, the appearance is a mosaic of open water, unvegetated mudflats in earth tones, and low-growing vegetation in various hues of green with seasonal yellow and reddish cast (in the autumn and winter). These present muted colors and rounded elements with low to moderate contrasts between elements. Behind the dike and east of I-5, impounded freshwater has generated a vegetation system dominated by taller cattails and bulrushes, which make the vegetation system appear very thick and dense. There are pockets of open water as well. Moving upstream



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into Escondido Creek, the vegetation is characterized by taller trees, some that are deciduous so they are bare in winter and lush during the summer.

There are isolated areas of altered or developed lands within the lagoon, including the Nature Center at the very northern edge of the lagoon and accessed by Manchester Avenue, and abandoned sewage settling ponds just east of the railroad. Numerous dirt trails traverse the lagoon site, mostly on the upland edges of the Reserve. These trails appear as brown linear features crisscrossing the greens of the vegetation, but they are relatively narrow and modest in size. Because the SELC has an extensive education and community outreach focus, plus the lagoon is an attractive feature for birders and naturalists, a large number of visitors of all ages come to the lagoon. Some electrical utilities also cross the site north to south and present signs of human intrusion. These features have not substantially diminished the overall character of the large, open, natural system.

Surrounding land uses to the north, generally north of Manchester Avenue, include residential, suburban development west of I-5, commercial uses at the interchange, agricultural uses just east of the interchange (with suburban homes on the hilltops above), and a community college as Manchester Avenue turns into a north-south roadway.

### ***Viewer Sensitivity***

Viewer sensitivity is a measure of public concern for scenic quality and is analyzed by considering the type of users, amount of use, public interest, and adjacent land uses. Users within the project area include recreational users, such as hikers, walkers, runners, birders, nature/wildlife observers, and photographers; commuters on I-5, Coast Highway 101, Manchester Avenue, and the railroad; and residents. Sensitive viewers are identified as users of the lagoon or beach (trails or Nature Center), drivers along scenic roads (Coast Highway 101, I-5, and Manchester Avenue), and viewers on the northern and southern bluffs, primarily at the city-designated vista point (San Elijo Avenue and Kilkenny Drive, which overlooks the lagoon and coast) and the residential areas.

### **3.5.5 PARKS, NATIONAL AND HISTORIC MONUMENTS, NATIONAL SEASHORES, WILDERNESS AREAS, RESEARCH SITES, AND SIMILAR PRESERVES**

The lagoon is officially designated as an Ecological Reserve by CDFW and as a State Marine Conservation Area (SMCA) under the Marine Life Protection Act (MLPA). The MLPA of 1999 directs California to redesign the state's system of marine protected areas (MPAs) (i.e., SMCAs) to function as a network in order to increase coherence and effectiveness in protecting the state's marine life and habitats, marine ecosystems, and marine natural heritage, as well as to improve

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recreational, educational and study opportunities provided by marine ecosystems subject to minimal human disturbance. Goals of the MLPA include:

1. Protect the natural diversity and abundance of marine life, and the structure, function and integrity of marine ecosystems.
2. Help sustain, conserve and protect marine life populations, including those of economic value, and rebuild those that are depleted.
3. Improve recreational, educational and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.
4. Ensure California's MPAs have clearly defined objectives, effective management measures and adequate enforcement and are based on sound scientific guidelines.

It is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for commercial or recreational purposes that would compromise protection of the species of interest, natural community, habitat, or geological features within an SMCA. In accordance with California Code of Regulations Title 14, Section 632(b)(117), boating, swimming, wading, and diving are prohibited within the San Elijo SMCA. The lagoon is also designated as ecological resource/open space/park by the City of Encinitas General Plan (City of Encinitas 1986). San Elijo State Beach and Cardiff State Beach occupy the coastal areas directly north and south of the existing lagoon inlet. See Appendix C (Regulatory Setting) of the SELRP Final EIR/EIS for more information regarding management goals of the City of Encinitas General Plan.

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## **4.0 IMPACT ANALYSIS**

### **4.1 IMPACTS ON PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE AQUATIC ECOSYSTEM**

#### **4.1.1 WATERS OF THE U.S.**

##### **4.1.1.1 Construction Impacts**

For purposes of analyzing impacts on jurisdictional waters, the footprints of the various project components are categorized as resulting in either direct or indirect long-term/permanent or short-term/temporary impacts. Permanent impacts include impacts that would result in a permanent loss of waters of the U.S. (i.e., when a discharge of dredged or fill material changes an aquatic resource to a non-aquatic resource) and impacts that would change the elevation and contours of the aquatic resource and may result in a habitat type conversion (i.e., changes an aquatic resource from one type to another type of aquatic resource). Temporary impacts include areas that may be impacted from dredging, flooding, or other construction activities, but the elevation and contours would remain at or be restored to preconstruction conditions once construction is completed.

Figures 9 and 10 show the jurisdictional resources in the project boundary with the limits of disturbance for Alternatives 2A and 1B – Refined, respectively.

#### Alternative 2A

Creation of transitional areas within the east and central basins under Alternative 2A would result in the direct permanent loss of approximately 12 acres (2 percent) of jurisdictional waters and wetlands of the U.S. (Figure 9). These transitional areas would be above the high tide line; as such, they are not expected to meet the three-parameter wetland criteria or be considered a non-wetland water of the U.S. Alternative 2A would result in a 12-acre decrease in jurisdictional wetland acreage overall as the transitional areas would not be considered wetland waters post-restoration; however, as discussed in Section 3.16 of the Final EIR/EIS, the transitional areas are designed to convert to wetlands or other waters under sea level rise, increasing resiliency and future wetland acreage. This increased resilience, along with improvement to overall hydrology and water quality conditions (discussed in Sections 3.2 and 3.4 of the Final EIR/EIS), would more than offset the decrease in wetland acreage in the short term.

Additionally, direct permanent impacts to approximately 172 acres of waters of the U.S. would occur as a result of conversion from one wetland type to another through grading/dredging of

channels, basins, and estuarine habitats. Table 15 identifies the habitat distribution that is projected under Alternative 2A as compared to existing conditions.

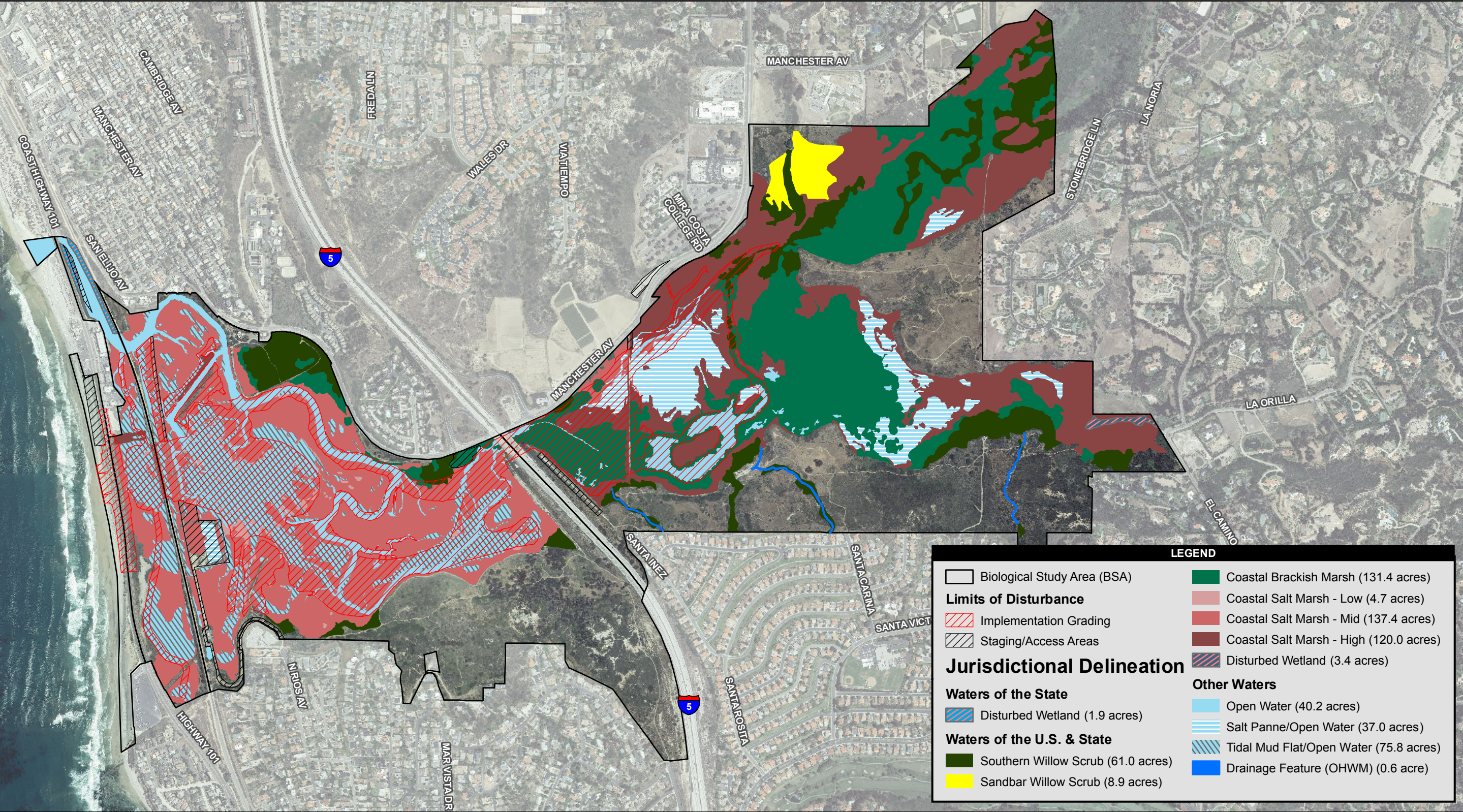
**Table 15**  
**San Elijo Lagoon Restoration Project**  
**Post-Restoration Vegetation Summary (acres) under Alternative 2A**

<b>Habitat Description</b>	<b>Existing -2012</b>	<b>Alt 2A</b>
Avian Island	0	2 (+2)
Mudflat	63	102 (+39)
Low Marsh	13	23 (+10)
Mid Marsh	141	124 (-17)
High Marsh	120	107 (-13)
Salt Panne	37	17 (-20)
Freshwater/Brackish Marsh	132	96 (-36)
Open Water/Tidal Channels and Basins	40	74 (+34)
Riparian	72	67 (-5)
Coastal Strand	5	5 (0)
Uplands & Others	299	292 (-7)
Beach	15	14 (-1)
Berms and Roads	23	24 (+1)
Transitional (created)	0	12 (+12)
<b>Total<sup>1</sup></b>	<b>960</b>	<b>960</b>

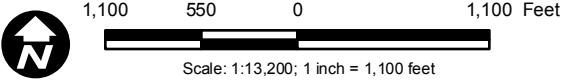
<sup>1</sup> Acreages may not sum correctly due to rounding.

Indirect impacts to jurisdictional waters of the U.S. would include changes in habitat or water quality that may result from project implementation. Beneficial impacts to the lagoon would occur as the lagoon would experience improved water quality and hydrologic function.





Source: SANDAG 2012; AECOM 2014



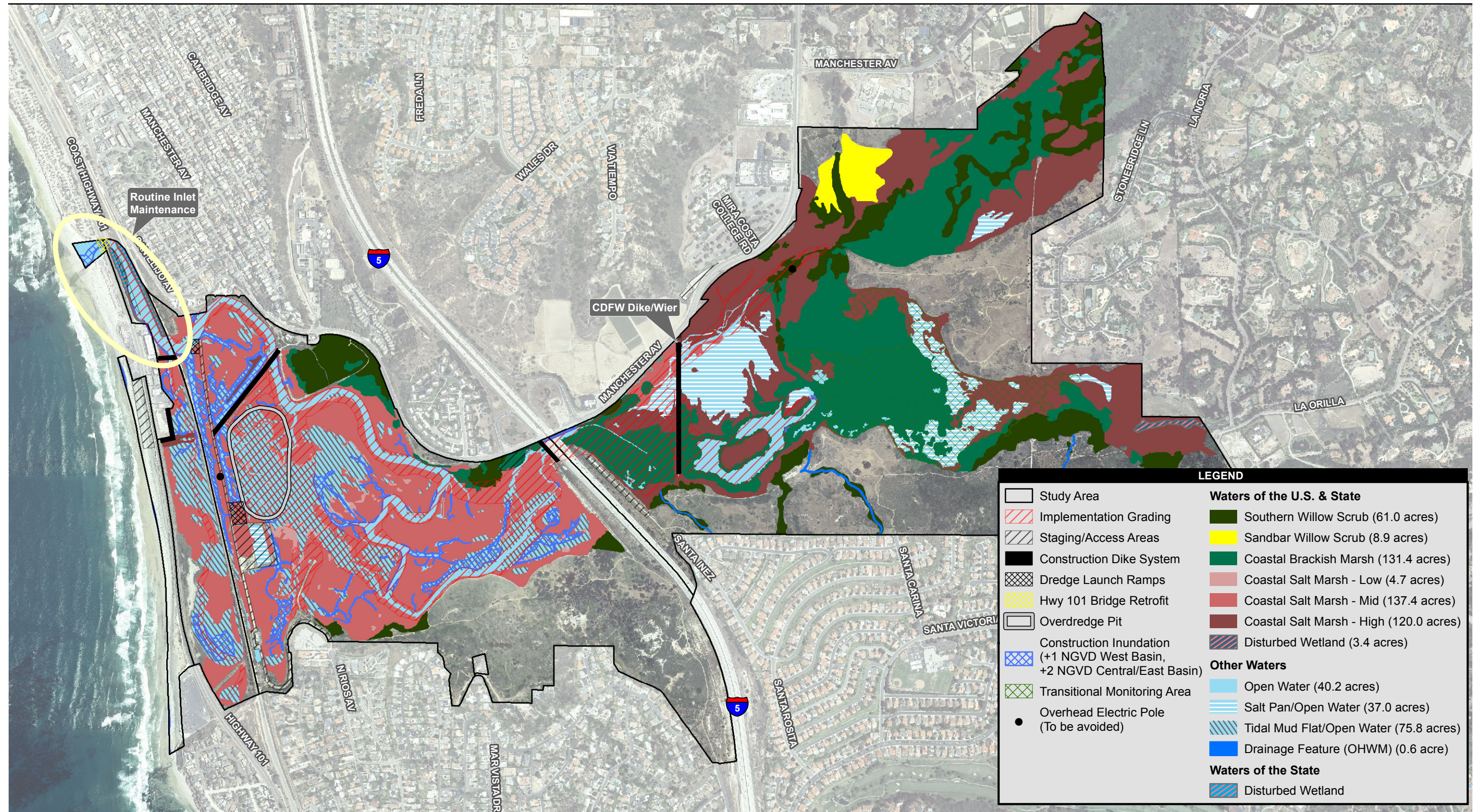
**Figure 9**  
**Jurisdictional Waters with Limits**  
**of Disturbance for Alternative 2A**



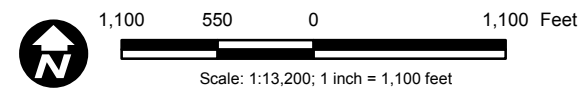
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Source: SANDAG 2012; MoffattNichol; AECOM 2013



Note: Alternative 1B - Refined would reduce inundation impacts by 85% compared to Alternative 1B. Approximately 20 acres would be inundated at different times during construction compared to 130 acres under Alternative 1B.

**Figure 10**  
**Jurisdictional Waters with Limits of Disturbance**  
**for Alternative 1B - Refined**



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Alternative 2A would result in temporary or short-term indirect impacts to approximately 108 acres of waters of the U.S. as a result of extended inundation activities required for the proposed dredging operations. These impacts would include the short-term loss of vegetation, wildlife, and potential impacts to water quality associated with construction activities. No significant indirect impacts to wetlands are anticipated with implementation of Alternative 2A.

#### Alternative 1B – Refined

Alternative 1B – Refined would include grading/dredging and temporary inundation to complete lagoon restoration activities, similar to Alternative 2A. However, Alternative 1B – Refined would reduce the extent of inundation and decrease grading/dredging in channels and transitional areas to preserve existing habitats. Alternative 1B – Refined would result in the direct permanent loss of approximately 10 acres of jurisdictional waters of the U.S. as a result of construction from transitional areas, as described above (Figure 10); however, the increase in wetland resiliency and future wetland acreage, and improvement to wetland conditions and functions discussed above under Alternative 2A would more than offset the 10-acre decrease in wetland acreage.

Additionally, Alternative 1B – Refined would result in direct permanent impacts to approximately 155 acres of waters of the U.S. as a result of conversion from one wetland type to another through grading/dredging of channels and estuarine habitats. Table 16 identifies the habitat distribution that is projected under Alternative 1B – Refined as compared to existing conditions.

Indirect impacts to jurisdictional waters of the U.S. would include changes in habitat or water quality that may result from project implementation. Beneficial impacts to the lagoon would occur as the lagoon would experience improved water quality and hydrologic function.

Alternative 1B – Refined would result in less temporary or short-term indirect impacts to waters of the U.S. compared to Alternative 2A due to less required inundation. Under Alternative 1B – Refined, approximately 19.6 acres of waters of the U.S. would be indirectly impacted from inundation activities. Similar to Alternative 2A, indirect inundation impacts would include the short-term loss of vegetation, wildlife, and potential impacts to water quality associated with construction activities. No significant indirect impacts to wetlands are anticipated with implementation of Alternative 1B – Refined.

**Table 16**  
**San Elijo Lagoon Restoration Project**  
**Post-Restoration Vegetation Summary (acres) under Alternative 1B – Refined**

<b>Habitat Description</b>	<b>Existing -2012</b>	<b>Alt 1B – Refined</b>
Avian Island	0	2 (+2)
Mudflat	63	66 (+3)
Low Marsh	13	50 (+37)
Mid Marsh	141	105 (-36)
High Marsh	120	125 (+5)
Salt Panne	37	32 (-5)
Freshwater/Brackish Marsh	132	101 (-31)
Open Water/Tidal Channels and Basins	40	63 (+23)
Riparian	72	67 (-5)
Coastal Strand	5	5 (+0)
Uplands & Others	299	295 (-4)
Beach	15	15 (0)
Berms and Roads	23	24 (+1)
Transitional (created)	0	10 (+10)
<b>Total<sup>1</sup></b>	<b>960</b>	<b>960</b>

<sup>1</sup> Acreages may not sum correctly due to rounding.

As with Alternative 2A, short-term indirect impacts to jurisdictional waters would include changes in habitat or water quality that may result from project implementation. Indirect temporary impacts to adjacent vegetation communities are anticipated to be minimal with the implementation of Alternative 1B – Refined.

### ***Summary of Impacts on Jurisdictional Resources***

Alternative 2A would result in the permanent loss of approximately 12 acres of jurisdictional waters and wetlands due to construction of the lagoon restoration project, while Alternative 1B – Refined would result in the permanent loss of approximately 10 acres. Both alternatives would

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also result in permanent direct impacts, but would not result in the permanent loss of waters of the U.S., to jurisdictional waters as a result of converting an aquatic resource from one type to another type of aquatic resource (172 acres under Alternative 2A, and 155 acres under Alternative 1B – Refined). Alternative 1B – Refined would result in fewer temporary indirect impacts (approximately 19.6 acres) to waters of the U.S. due to reduced inundation as compared to Alternative 2A (approximately 108 acres). Conditions of the converted jurisdictional waters and wetlands within the lagoon are expected to be enhanced with improved hydrologic conditions and a more stable and connected gradient of balanced habitat types, which would improve overall wetland conditions and functions. Given the small amount of permanent loss (approximately 2 percent) relative to the amount of habitat to be enhanced and the improved lagoon conditions, direct and indirect impacts to waters of the U.S. are not adverse.

The project, under Alternatives 2A and 1B – Refined, has been designed in a manner that minimizes indirect effects on waters of the U.S. Implementation of sediment- and erosion-control best management practice (BMP) measures would ensure that sedimentation, erosion, and other potential adverse effects on the lagoon would be minimized. In addition, several construction methods would be employed that would minimize impacts to water quality. For instance, actively managing water levels by temporarily diking off portions of the lagoon being actively graded/dredged would help to prevent release of disturbed sediment to the coast. This strategy would control the flow of turbid, disturbed waters and allow for some settling of sediment.

#### **4.1.1.2 Operational Impacts**

Operation and maintenance of the lagoon would cause temporary disturbances to waters of the U.S. at intervals during the project's life under Alternative 2A or Alternative 1B – Refined. Periodic sediment removal at the inlet and in lagoon channels would be required to remove accumulated sediment to maintain improved hydraulic conditions. Other maintenance activities would likely include replacement planting, weed abatement, and bank protection repair.

### **4.1.2 DIRECT AND INDIRECT IMPACTS ON JURISDICTIONAL CONDITIONS/STREAM CONDITION**

#### **4.1.2.1 CRAM Analysis**

As described in Section 3.1.2, the SELC evaluated the baseline condition of the project study area using CRAM in 2010. This method has also been used to predict and quantify post-project wetland conditions within the project study area for both Alternatives 2A and 1B – Refined. The restoration alternatives would involve the grading and recontouring of many of the AAs, and post-restoration habitats may also be different than existing habitats at any given location; therefore, it is not feasible to predict changes to CRAM scores at the individual AA level. As

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such, the projected change to the attributes and metrics is based on the trends observed in the baseline data and how those trends may change in response to restoration.

Although the 2010 baseline CRAM data utilized version 5.02, this discussion is based on the most current version (6.1) of CRAM for both estuarine and depressional wetlands as it is expected that the most current version would be used for post-restoration monitoring. It should also be noted that, under each alternative, some of the AAs (entirely or a portion of) would be converted to unvegetated wetland types subtidal habitat or intertidal mudflat, which CRAM is not designed to assess. Therefore, the discussion below does not apply directly to these types of habitats although the Physical Structure attribute does factor in the presence of mudflats (unvegetated areas), as well as primary and secondary channels. The changes to wetland condition discussed below are also contingent on the maturation of the project study area following successful restoration implementation, as it is expected that CRAM scores would initially decrease following site dredging and grading, and would require several years of recovery to reach or exceed baseline values. Finally, the discussion focuses on those portions of the project study area that will be directly affected by the restoration; as such, the depressional AAs in the far east basin are not evaluated further. These depressional AAs are expected to remain in a similar condition to baseline as they are not in proximity to the new high water line.

#### **4.1.2.2 Buffer and Landscape Context**

Other than the removal of the CDFW dike, there are no substantial changes (i.e., road setbacks or removal of development) with either alternative; as such, the Buffer and Landscape Context attribute is expected to remain relatively unchanged under each restoration alternative. In particular, the Aquatic Area Abundance metric (proximity to aquatic resources), Percent of AA with Buffer submetric, and Average Buffer Width submetric scores are not expected to change, as these categories are based on the surrounding landscape, which would not change under either alternative. However, Buffer Condition submetric scores are expected to increase for those AAs that have not already achieved an A score, as the monitoring and adaptive management program is implemented after restoration is completed. Since the entire lagoon is to be restored, the condition of the buffer (250 meters surrounding each AA) is expected to improve over time as the restoration is implemented and nonnative species are removed.

#### **4.1.2.3 Hydrology**

Each project alternative is intended to increase tidal exchange, improve water quality, and restore lagoon hydrologic functions. Greater changes in hydrology are expected under Alternative 2A, due to increased grading/dredging over Alternative 1B – Refined. However, it is unlikely that CRAM will be able to detect strong differences between the alternatives as the assessment



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method has large scoring bins to intentionally enable application across the state. The Water Source metric would not change post-restoration, as the scores for this metric are based on conditions in the surrounding watershed (within 1 kilometer), which would not be affected by either alternative. Scores for the Hydroperiod metric, which looks at tidal muting for the estuarine AAs, are already quite high for most of the AAs and for the most part are not expected to change for Alternative 1B – Refined. However, the extensive dredging and new mouth for Alternative 2A would virtually remove the current muting that the lagoon experiences and, as such, all AAs in the west and central basins would increase to an A. The east basin estuarine AAs, including the new ones created by removal of the dike and the extended tidal prism, would also likely increase to an A. The scores for the estuarine AAs east of I-5 and behind the CDFW dike (EB02 and EB36) would improve following the removal of the dike. Scores for the Hydrologic Connectivity metric, which looks at the transition from wetland to upland, may also improve for some of the AAs, particularly those near the proposed widening of the I-5 bridge (all alternatives) or new lagoon inlet (Alternative 2A). Scores for this metric are expected to remain constant for most of the AAs as they are constrained by existing infrastructure (e.g., the railroad track, surrounding roads, etc.) that would not change. Lastly, changes in lagoon hydrology under each alternative are expected to result in the conversion of EB33 and EB34 to estuarine AAs, rather than depressional AAs.

#### **4.1.2.4 Physical Structure**

Localized improvements may be realized in the Physical Structure attribute under each alternative due to alteration of the physical structure of the project study area via dredging, creation of mudflats and secondary channels, increased tidal exchange, and other corresponding hydrology changes. The improvements are expected to occur at the AA scale and would vary throughout the site. Following restoration, it is expected that most of the AAs would receive B and C scores for both the Structural Patch Richness and Topographic Complexity metrics. This is similar to the trend currently observed in the project study area, which also includes a few A and D scores. However, it is anticipated that a higher percentage of AAs would score in the C and B bins and less would be D. As the Physical Structure attribute is shaped by the hydrology of the system, this attribute may take longer to recover to baseline conditions and even more time to increase following initial grading, which inherently removes structural complexity.

#### **4.1.2.5 Biotic Structure**

Many of the AAs already support fairly complex biotic structure and diverse native vegetation. Therefore, CRAM scores may not exhibit significant improvements in this attribute, particularly the Number of Plant Layers and Number of Co-dominant Species submetrics. However, following implementation of each alternative, it is anticipated that all AAs would achieve an A

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score for the Percent Invasion submetric, as the monitoring and adaptive management plan is implemented after completion of the restoration project. It is also anticipated that the Horizontal Interspersion metric scores of many of the AAs would increase with improved hydrology, with most AAs achieving a C or B score for this metric and some A scores as well. Vertical Biotic Structure scores are already fairly high for many of the AAs and are not expected to change significantly under any alternative. It is important to note that CRAM inherently scores higher for systems with complex vegetation. In the lagoon's current state of transitioning from mudflat to mid- and low-marsh, CRAM is actually capturing the intermediate response of the vegetation, which scores well. If habitat conversion trends continue, CRAM scores for biotic structure in the west basin may begin to decrease as monocultures increase. Although the current trajectory for habitat conversion is expected to peak in 5 to 10 years, the overall response by the biological community (i.e., competition) may take decades to be observed.

### ***Summary***

As discussed above, the condition of the jurisdictional resources is expected to improve under each alternative, although some of these improvements may not be detectable with CRAM. A main difference between the restoration alternatives is the proposed new location of the lagoon inlet under Alternative 2A, which is predicted to result in a larger tidal prism and increased tidal exchange relative to Alternative 1B – Refined. In addition, the amount of mudflat and mid-marsh habitat is expected to increase for Alternative 2A relative to Alternative 1B – Refined, while low-marsh is higher in Alternative 1B – Refined. Although these are clear differences in the alternatives, these changes may not be detectable with CRAM, which is a Level II (rapid assessment) method intended to be applicable throughout the state. CRAM was designed to provide standardized, cost-effective tools for evaluating the general conditions of wetlands along a spectrum from full ecological integrity to highly degraded. The method has been developed to compare wetlands within any given class (i.e., estuarine) across the state and, as such, the scoring bins are large and do not necessarily have the resolution to detect the type of changes associated with this project.

Although the lagoon is clearly operating in a degraded state with poor seasonal water quality, nutrient laden soils, and long-term habitat conversion, the impacts to the biotic and physical structure has only just begun. For example, if the continued transition from mudflat to low-marsh was allowed to continue over time, CRAM would likely detect a decrease in Biotic Structure and perhaps a decrease in Physical Structure as well. The method has not been designed to detect changes in water quality and tidal exchange directly but rather the response of the wetland to such changes, which may take decades to observe. As these are several of the main benefits of both proposed alternatives, such changes would be more clearly detected via intensive (Level III) assessments focused on these functions. Due to the similarity between Alternatives 2A and 1B – Refined, a similar forecast for future wetland condition is predicted for both alternatives.

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#### **4.1.3 PHYSICAL SUBSTRATE IMPACTS**

Restoration activities within the lagoon would require the dredging, removal, and backfill of large quantities of material from the lagoon basins and tidal channel resulting in disturbance of the physical substrate. Under Alternative 2A, approximately 1.4 mcy of substrate material would be removed from the lagoon basins and tidal channels resulting in the direct impact to approximately 196.6 acres of physical substrate. Substrate composition would remain the same as existing conditions because the project does not propose to import any fill material. Alternative 2A would result in changes in substrate contours and elevations due to creation of new channels, channel widening, and deepening. Changes in substrate elevation and contours would likely result in modifications to water circulation, depth, current patterns, water fluctuation and temperature. Direct and indirect effects to water circulation, current patterns, and fluctuation are discussed in more detail below in Section 4.1.6.

Any discharge of fill material from changes in elevation and channel excavation could result in direct and indirect impacts to the physical, chemical, and biological conditions of the substrate, including covering and displacement of substrate by fills and turbidity in the water column. Substrate values including food, cover, and habitat for aquatic organisms would be adversely affected during construction of Alternative 2A as sediments would be excavated and disposed of and vegetative cover removed. Suspended particulates settling on attached or buried eggs can smother the eggs by limiting or sealing off their exposure to oxygenated water. Discharge of fill material may result in the debilitation or death of sedentary organisms by smothering, exposure to chemical contaminants in dissolved or suspended form, exposure to high levels of suspended particulates, reduction in food supply, or alteration of the substrate upon which they are dependent. Suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water. Depressed oxygen levels can cause respiratory stress, and even mortality, to aquatic life. Construction of Alternative 2A, due to ground and vegetative cover removal, could result in scour, sedimentation, and increased rates or volumes of runoff that could directly impact substrates during construction and could adversely alter the substrate downstream from the direct effects of scour or from the creation of silt or contaminants.

A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and BMPs implemented to minimize impacts on surface drainage patterns, the amount of surface runoff, and water quality. Typical BMP measures include preservation of existing vegetation to the extent feasible, use of vegetated drainage swales and/or runoff dissipaters, use of wind erosion control (e.g., geotextile or plastic covers on stockpiled soil), installation of silt fences or fiber rolls, and stabilization of site ingress/egress locations to minimize erosion. As discussed above, water levels would be managed by temporarily diking off portions of the lagoon during active dredging to prevent the release of disturbed sediment.

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Lagoon restoration activities would typically be performed during dry weather conditions but within wet or fairly saturated soil conditions. As grading/dredging would largely be confined to the interior lagoon areas and within the channels, the exposure and potential for erosion would be limited. The increased areas of inundation associated with the temporary flooding necessary for construction activities would not result in substantial erosion or other adverse geologic hazards as those areas within the temporarily elevated water line would not be subject to high velocity water flow or other factors that typically cause erosion or sedimentation. The areas of flooding would be within current and historic levels of lagoon inundation.

In general, the soils in the lagoon are weak and may be subject to erosion, settlement, and lateral spreading during implementation of the project. These factors would be considered during the geotechnical design, and structures would be properly designed and engineered to achieve high safety standards when being constructed in unstable geologic conditions. Additional geotechnical analysis would be performed prior to construction, and bridges would be constructed/retrofitted following appropriate site-specific soil construction techniques. Channel deepening and resulting protection design would also be addressed through appropriate design standards. The preliminary geotechnical investigation (URS 2012) showed that the lagoon sediments are predominantly fine-grained silty clay and silty sand soils with low strength. These types of soils would readily erode when exposed to wave action. The project would not cause increased instability or accelerated erosion on the surrounding slopes and hillsides. Therefore, due to the SWPPP that would be developed and approved prior to construction and the sediment and erosion control BMPs that would be implemented both during and immediately after construction and maintenance activities, the direct and indirect impacts to substrate would be less than significant.

Under Alternative 2A, CBFs would be constructed on both sides of the new lagoon inlet to minimize potential erosion-related soil instability due to tidal flow and scouring, and wave-induced scour by blocking direct wave impact on bridge abutments. CBFs would be constructed of large riprap along the sides of the tidal inlet channel extending seaward (perpendicularly) approximately 130 feet to the -5-foot mean lower low water contour on the beach. CBFs would alter the physical substrate of the beach by displacing existing substrate and changing or destroying habitats. CBFs would be stable during extreme storm wave events and would serve to reduce incoming wave energy by blocking a portion of incident wave energy at the inlet mouth. Wave properties change as they pass from the ocean through the constrained inlet channel and then into the west and central basins. The shape of the west and central basins is intentionally designed as one large oval to maximize wave divergence and energy loss. Waves tend to focus on protrusions into basins and this can cause erosion, so the project design has no protrusions in the basins. As such, ocean waves would become substantially smaller and less energetic as they pass into the basin(s) and should not result in significant erosion. The mudflat area east of the full tidal basin in the central basin may experience some small-scale erosion under certain

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conditions, but that process would only be anticipated to result in shifting of sediment into another portion of the basin, creating similar habitat. A new Coast Highway 101 bridge would be built under Alternative 2A and channels would require substantial deepening for improved hydraulics. Adherence to required design standards, grading, and construction practices would avoid or reduce risks associated with unstable soil conditions or other adverse geologic hazards.

Alternative 1B – Refined would have less direct and indirect effects to substrate as compared to Alternative 2A. Under Alternative 1B – Refined, approximately 920,000 cy of substrate material would be removed from the lagoon basins and tidal channel, directly impacting 160.8 acres of physical substrate. Alternative 1B – Refined would result in changes in substrate contours and elevations due to creation of new channels, channel widening, and deepening; however, the extent of grading and dredging would be less than Alternative 2A. Changes in substrate elevation and contours may result in modifications to water circulation, depth, current patterns, water fluctuation, and temperature (discussed in more detail below in Section 4.1.6). Alternative 1B – Refined would include retrofitting the existing bridge, and channels would require substantial deepening for improved hydraulics. Adherence to required design standards, grading, and construction practices would avoid or reduce risks associated with unstable soil conditions or other adverse geologic hazards.

#### **4.1.4 SUSPENDED PARTICULATE/TURBIDITY IMPACTS**

Proposed dredging activities in the lagoon would result in short-term disturbance of localized lagoon sediments under Alternative 2A. As is typical for dredging projects, construction dredging of lagoon sediments could adversely affect water quality by temporarily resuspending sediments, thereby increasing turbidity.

Suspended sediments in the water column can lower levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water. The degree of turbidity resulting from the suspended sediments would vary with the quantity and duration of the construction activity and would also depend on the methods used, the quality of equipment, and the care of the operator. In all cases, increased turbidity levels would be temporary and generally confined to within a few hundred yards of the activity. After initially high turbidity levels, sediments would disperse and background levels would be restored within hours of disturbance. Substantially depressed oxygen levels (i.e., below 5 mg/L) can cause respiratory stress to aquatic life, and levels below 3 mg/L can cause mortality. However, oxygen levels resulting from project construction activities are not expected to remain low for long periods. Also, tidal flushing would improve depressed oxygen levels by introducing oxygenated water into the project area, and releases of anoxic (oxygen-poor) sediments would occur for relatively short time periods. Normal circulation and tidal effects in the lagoon would

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generally disperse and dilute the water temporarily affected by construction activities. Therefore, only temporary water quality impacts related to suspended sediments in the water column would be expected during dredging activities. In addition, a cutterhead dredge would be used for sediment removal, which would minimize turbidity compared to other dredge types. A project-specific SWPPP and BMPs would be implemented that would be designed to protect water quality and avoid sediment transport during construction and routine maintenance activities. With implementation of BMPs and SWPPP, direct and indirect impacts due to suspended sediments and turbidity Alternative 2A would not result in significant adverse impacts.

Upon project construction, Alternative 2A would change the system to an ebb flow-dominated lagoon hydrologic system, which would reduce the necessity for repeated temporary impacts from inlet and/or channel maintenance. Beneficial impacts to the lagoon associated with a substantially improved tidal prism would provide higher tidal exchange and flushing, with less frequent maintenance disturbance. Increased tidal flushing would improve the ability of the lagoon to drain and would reduce the potential for sedimentation. Water quality throughout the lagoon would be greatly improved through the creation of a new and enlarged inlet mouth, removal of historic nutrient-rich sediments, improved hydrology to allow freshwater to flow out of the lagoon, larger tidal exchange throughout the lagoon, and a subsequent increase in the abundance of plants/animals that help filter particulates and dissolved pollutants in watershed drainage.

Alternative 1B – Refined would result in similar short-term disturbance of localized lagoon sediments as Alternative 2A. Effects of this construction dredging on water quality could include the temporary resuspension of sediments, resulting in increased turbidity. This resuspension could reduce levels of dissolved oxygen, increase salinity, increase concentrations of suspended solids, and possibly release chemicals present in sediments into the water. The degree of this turbidity would vary depending on the construction activity. These construction-related increases in turbidity would be temporary and generally confined to within a few hundred yards of the activity.

Tidal flushing, the use of a cutterhead dredge, and the implementation of a project SWPPP and BMPS would reduce these impacts, as described above for Alternative 2A. Additionally, implementation of Alternative 1B – Refined would include 43 less acres of grading and 480,000 less cy of material removed than Alternative 2A. Under Alternative 1B – Refined, grading with low-pressure earth-moving equipment in areas adjacent to channels identified for grading would minimize the potential for turbidity. Direct and indirect impacts due to suspended sediments and turbidity under Alternative 1B – Refined would be less than those under Alternative 2A, and would not result in significant adverse impacts.

After construction, Alternative 1B – Refined would change the lagoon system to an ebb flow-dominated hydrologic system. Maintenance-related disturbance would occur every year rather



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than every three years under Alternative 2A, but the amount of material removed per maintenance event would decrease from 300,000 cy to 40,000 cy. Beneficial water quality impacts throughout the lagoon would include the removal of historic nutrient-rich sediments, improved hydrology to allow freshwater to flow out of the lagoon more efficiently, reduced potential for sedimentation, larger tidal exchange throughout the lagoon, and a subsequent increase in the abundance of plants/animals that help filter particulates and dissolved pollutants in watershed drainage.

#### **4.1.5 WATER IMPACTS**

The discharge of dredged or fill material during construction of Alternative 2A would have the potential to temporarily alter the chemical and physical characteristics of the lagoon receiving water by introducing chemical constituents that could cause changes in the clarity, color, odor, and taste of water. Turbidity within the lagoon would be expected during active construction and plumes exiting the inlet would be expected whenever flow would be released into the ocean. Sediments could be temporarily resuspended in the water column during dredging activities. Nutrients could potentially become suspended within these areas of localized turbidity, temporarily increasing the potential for eutrophic conditions to develop within the lagoon. Excessive concentrations of nutrients such as nitrogen and phosphorus can lead to algal blooms that, in turn, promote eutrophication and depressed dissolved oxygen that can stress aquatic organisms and cause unpleasant odors. Eutrophication leads to fish kills during warm weather, and potentially limits the ecological health of species and habitats within the lagoon. Studies within the lagoon have shown that historically accumulated nutrients in the sediment are one of the primary causes of eutrophication and low dissolved oxygen levels in the water column (McLaughlin et al. 2010). Algae are also a sign of poor circulation and potentially compromised water quality for organisms. The sediment residence time in the lagoon and turbidity plume in the ocean that result would depend largely on construction methods used as well as coastal processes at the time of construction. However, increased turbidity would be temporary and is expected to dissipate quickly from mixing and dilution. In addition, implementation of the project SWPPP and BMPs would minimize nutrient and sediment pollutant discharge.

Implementation of Alternative 2A would remove large areas (approximately 68.4 acres) of high-nutrient sediments. Removal of this high-nutrient sediment would help address water quality issues within the lagoon associated with eutrophication. Nutrient load would also be reduced as a result of the new tidal inlet and increased tidal exchange. Restoration of tidal influence to the lagoon and enhancing freshwater fluvial flows out of the lagoon, in conjunction with removal of sediments with historically accumulated nutrients, would restore the physical, chemical, and biological functions and services that have been degraded over the years. Sediment exchange between the ocean and lagoon would stabilize, and pollutants settling in the sediment would have

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less potential to accumulate. Rapid continuous water exchange (i.e., short residence times) with the nearshore environment would provide nutrients and high levels of dissolved oxygen associated with cool, well-mixed marine water.

Stagnant water conditions would be improved with implementation of Alternative 2A. The greater mixing potential (increased tidal exchange and improved circulation) in the lagoon would allow greater seawater influence and improve brackish conditions higher in the back waters of the lagoon. Alternative 2A would decrease the existing water residence time of the east basin from 15 days to less than 7 days at all 5 of the 5 east basin sample sites. Thus, Alternative 2A would meet the criteria of more than 50% of sample sites in the basin falling under the 7-day threshold. Elevated bacteria concentrations in the nearshore area would be reduced from approximately 9 days to 1 day.

The result would be a beneficial impact to water and sediment quality through a reduction in pollutants released to the environment and a reduction in potential hazards to human health and biological communities. Although temporary water quality impacts related to suspended solids and increased nutrients in the water column would be expected during dredging activities, Alternative 2A would provide long-term water quality benefits as a result of the removal of nutrient-rich sediments, increased tidal exchange and improved circulation, shorter residence times, and reduced sedimentation throughout the lagoon. Overall lagoon function, hydrologic connectivity, and water quality would be improved; therefore, Alternative 2A would not result in any significant adverse impacts to water.

Construction of Alternative 1B – Refined would result in similar discharge of dredged or fill materials to that under Alternative 2A, and would have the potential to temporarily alter the lagoon receiving water by introducing chemical constituents. Turbidity within the lagoon would be expected during active construction, and plumes exiting the inlet would be expected whenever flow would be released into the ocean. Sediments and nutrients could become temporarily resuspended in the water column during dredging, with effects similar to those described for Alternative 2A. The sediment residence time in the lagoon and the turbidity plume in the ocean that result would depend largely on construction methods used as well as coastal processes at the time of construction. Increased turbidity would be temporary and is expected to dissipate quickly from mixing and dilution.

Alternative 1B – Refined would include 43 less acres of grading, 90.9 less acres of inundation and 480,000 less cy of material removed than Alternative 2A, reducing the amount of disturbance and resultant turbidity. The use of low-pressure earth-moving equipment in areas adjacent to channels identified for grading would further minimize the potential for turbidity, compared to Alternative 2A. In addition, implementation of the project SWPPP and BMPs would minimize nutrient and sediment pollutant discharge.

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Implementation of Alternative 1B – Refined would remove 54.8 acres (47 percent) of the high-nutrient sediment within the lagoon, which would help reduce eutrophication-related water quality issues within the lagoon. The project would also enhance tidal exchange and fluvial flows out of the lagoon. These improvements, in conjunction with removal of sediments with historically accumulated nutrients, would restore the degraded physical, chemical, and biological functions and services of the lagoon. Sediment exchange between the ocean and lagoon would stabilize, and pollutants settling in the sediment would have less potential to accumulate. Rapid continuous water exchange (i.e., short residence times) with the nearshore environment would provide nutrients and high levels of dissolved oxygen associated with cool, well-mixed marine water.

Stagnant water conditions would be improved with implementation of Alternative 1B – Refined. The greater mixing potential (increased tidal exchange and improved circulation) in the lagoon would allow greater seawater influence and improve brackish conditions higher in the back waters of the lagoon. Under existing conditions, the water residence time in the east basin is 15 days. Under Alternative 1B – Refined, the residence time would be reduced to less than 7 days at 3 of the 5 sample sites in the east basin. Thus, Alternative 1B – Refined would meet the criteria of more than 50% of sample sites in the basin falling under the 7-day threshold. Elevated bacteria concentrations in the nearshore area would be reduced from approximately 9 days to 6 days.

The result would be a beneficial impact to water and sediment quality through a reduction in pollutants released to the environment and a reduction in potential hazards to human health and biological communities. Although temporary water quality impacts related to suspended solids and increased nutrients in the water column would be expected during dredging activities, Alternative 1B – Refined would provide long-term water quality benefits similar to but less than Alternative 2A. Overall lagoon function, hydrologic connectivity, and water quality would be improved; therefore, Alternative 1B – Refined would not result in any significant adverse impacts to water.

#### **4.1.6 CURRENT PATTERNS AND WATER CIRCULATION, NORMAL WATER FLUCTUATION, AND SALINITY GRADIENT IMPACTS**

The project is designed to improve water circulation, fluctuation, and salinity levels within the lagoon. The main parameters subject to change with implementation of the project include tidal range, residence time, and salinity. Refer to Section 3.2 and the Preface of the SELRP Final EIR/EIS for a detailed discussion of direct and indirect effects of the proposed project and alternatives on hydrology.

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## **Current Patterns and Water Circulation**

Alternative 2A would directly and indirectly impact current patterns and water circulation both during and after project construction. During construction temporary but significant changes would occur to the lagoon's water circulation and drainage patterns as a result of controlled inundation required to complete dredging activities. During periods of controlled inundation, water levels within diked off areas would increase relative to existing conditions, altering flow regimes downstream of the diked off areas. Inundated areas would be subject to slower velocities as they are separated from main channel and inlet flows. Some circulation would continue to occur due to dredge and support equipment movement and wind wave-driven circulation. Dikes would incorporate a mechanism to control water elevations and allow the release of water if water entering the diked off areas raises water levels above 5 or 6 feet.

Upon project completion, Alternative 2A would increase the hydraulic efficiency of San Elijo Lagoon by creating a new, more stable inlet, increasing and extending the channel network within the lagoon basins, and improving the transportation infrastructure to minimize constrictions at crossings. With expanded channels and the new mouth, water levels would vary relative to the expanded cross-sectional area of newly sculpted channels, altering flow regimes in deepened areas. Circulation within the lagoon would increase with the new inlet and improved channel network. Flow volumes and velocities through the lagoon would be expected to increase due to the open tidal inlet. Hydrology throughout the lagoon would be greatly improved through the creation of a new and enlarged inlet mouth and enhanced channel flow regimes that would allow freshwater to flow out of the lagoon and promote improved tidal exchange deeper to the inland areas of the lagoon. Tidal influence would also be increased over existing conditions throughout the lagoon by constructing a new, larger, and more stable inlet south of the existing inlet. The new inlet would provide less muted flow directly into lagoon channels. The larger cross-sectional profile area of the dredged channels would offer less resistance to tidal fluctuation and allow a greater volume of tidal exchange, giving the lagoon a greater opportunity to flush more readily than existing conditions. This inlet would provide additional circulation to the east basin, as well as throughout the central and west basins through the extension of the existing channel network.

Table 17 presents predicted tidal ranges at several locations within the lagoon, and the ocean tidal range for comparison (M&N 2012a). Each location represents conditions within the lagoon moving east away from the ocean. Increased tidal circulation would improve water quality parameters (refer to Section 3.4 and the Preface of the Final EIR/EIS), including dissolved oxygen and nutrient levels and would provide water temperatures and salinities similar to those in the adjacent nearshore environment as residence time would be greatly decreased. Residence time for both Alternatives 2A and 1B – Refined are presented in Table 18.

**Table 17**  
**Predicted Tidal Ranges for Restoration Alternatives 2A and 1B – Refined**

Alternative	Tidal Range (feet)					
	Ocean	HW101	West Basin	Central Basin	I-5	East Basin
Existing	7.97	4.56	3.99	3.85	3.78	3.76
1B – Refined	7.97	6.58	5.44	5.42	5.42	5.43
2A	7.97	7.97	7.93	7.92	7.87	7.88

Source: M&N 2012a

**Table 18**  
**Proportion of Sample Sites in Each Basin with Residence Times Less Than 7 Days**

Alternative	West Basin	Central Basin	East Basin
Existing	1/2	6/11	0/5
1B – Refined	2/2	11/11	3/5
2A	2/2	11/11	5/5

In summary, implementation of Alternative 2A would temporarily adversely affect drainage patterns and water circulation during construction within diked off areas but would have direct long-term beneficial impacts on tidal exchange and hydrologic drainage patterns by allowing the greatest tidal influence and improving drainage pathways from the lagoon to the coast.

Alternative 1B – Refined would result in fewer impacts to water circulation and current patterns relative to Alternative 2A due to 91 less acres of inundation and 43 less acres of grading. Impounded areas would be of a lesser extent than described under Alternative 2A, but could also be maintained for a shorter duration and dredge equipment movement would provide mechanical circulation, promoting localized lagoon circulation and turnover. In addition, water would be released intermittently during periods of no construction, enabling periods of tidal exchange and circulation. As construction progresses, and impounded and dredged areas are opened to tidal action, those areas would have greater circulation and tidal exchange, increasing circulation over existing conditions. Similar to Alternative 2A, circulation and tidal influence would increase under Alternative 1B – Refined, but to a lesser degree, as Alternative 1B – Refined would retain the location of the existing lagoon inlet. Drainage patterns would be altered but would benefit the lagoon with respect to biological resources and overall water quality.

### **Normal Water Fluctuation**

During the construction process of Alternative 2A, temporary changes would occur to the lagoon's water balance. During periods of controlled inundation within certain areas of the lagoon, water levels within diked off areas would increase relative to existing conditions. As flooding is initiated and vegetation removed from the basins, the water elevation would increase

and surface area would expand. Dikes would incorporate a mechanism to control water elevations and allow the release of water if runoff into the diked areas raises water levels above 5 or 6 feet NGVD. Proposed elevations would remain below the 100-year storm water elevation to minimize flooding impacts during construction. Water level would return to pre-construction elevations once each area is reopened to tidal flow. Temporary impacts to vegetation communities, including coastal salt marsh (low- and mid-), open water, salt panne/open water, and tidal mudflats, could occur as a result of inundation as some inundated vegetation would not survive. This could result in impacts to sensitive species as a result of temporal loss of habitat and reduced availability of food and shelter for resident and migratory species (refer to Section 4.2.1 for additional discussion).

Upon project completion, the hydraulic efficiency under Alternative 2A would be improved. Removal of the CDFW dike, infrastructure improvements, and channel enlargements would enable the lagoon to drain incoming freshwater more efficiently. The larger cross-sectional profile area of the dredged channels would offer less resistance to tidal fluctuation and allow a greater volume of tidal exchange, giving the lagoon a greater opportunity to flush more readily than existing conditions. Drainage would be more efficient both during dry weather flows as well as during storm events, leading to less potential in general for flooding hazards. Alternative 2A has been designed to reduce the potential for flooding due to expanded channel cross-sections under lagoon bridges and improved lagoon hydrology. As shown in Table 19, Alternative 2A would reduce flood elevations as compared to existing conditions with improved lagoon hydrology (M&N 2012a). Current levels above flood elevations (+12 NGVD) at the east basin locations would be reduced to below flood elevations. In addition, channel and infrastructure improvements would be reviewed by Caltrans and the City of Encinitas, as appropriate, prior to approval of project grading plans.

**Table 19**  
**Maximum 100-Year Flood Elevation in the Wetlands (feet, NGVD)**

<b>Locations</b>	<b>Existing</b>	<b>Alt 1B – Refined</b>	<b>Alt 2A</b>
HW101	5.3	5.3	5.3
Railroad	8.5	8.1	6.3
Central Basin 1	8.9	8.7	6.5
Central Basin 2	9.0	8.7	6.7
I-5	9.4	8.8	7.3
East Basin 1	9.8	8.8	7.5
East Basin 2	<b>12.3</b>	9.0	8.1
East Basin 3	<b>12.4</b>	9.0	8.3
East Basin 4	<b>12.3</b>	9.0	8.4

NGVD = National Geodetic Vertical Datum

Note: Values in **bold** indicate elevations above the roadway and represent potential flooding.



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Implementation of Alternative 2A would temporarily adversely affect water fluctuation, vegetation communities, and sensitive species during construction within diked off areas but would have direct long-term beneficial impacts on tidal fluctuation and hydrologic drainage by allowing greater tidal exchange and reduced flood elevations. Sensitive habitats subject to grading/dredging or inundation are expected to recover and mature within 5 to 10 years following restoration. With implementation of Alternative 2A, the lagoon would experience improved water quality and hydrologic function and increased foraging habitat, which would be a beneficial impact to species.

Similar changes to the lagoon's water balance would occur under Alternative 1B – Refined. During periods of controlled inundation within certain areas of the lagoon, water levels within diked off areas would increase relative to existing conditions. The extent of these inundated areas would be reduced by 90.9 acres under Alternative 1B – Refined compared to Alternative 2A. For those areas that are diked off under Alternative 1B – Refined, the same mechanisms as described for Alternative 2A would be utilized. Impacts would be similar in kind to those described under Alternative 2A, but reduced in both spatial and temporal extent.

Upon project completion, the hydraulic efficiency under Alternative 1B – Refined would be improved as described under Alternative 2A, but to a lesser extent. As shown in Table 19, Alternative 1B – Refined would reduce flood elevations as compared to existing conditions with improved lagoon hydrology (M&N 2012a). Current levels above flood elevations (+12 NGVD) at the east basin locations would be reduced to below flood elevations. In addition, channel and infrastructure improvements would be reviewed by Caltrans and the City of Encinitas, as appropriate, prior to approval of project grading plans.

Implementation of Alternative 1B – Refined would temporarily adversely affect water fluctuation, vegetation communities, and sensitive species during construction within diked off areas but would have direct long-term beneficial impacts on tidal fluctuation and hydrologic drainage by allowing greater tidal exchange and reduced flood elevations. As described above, however, the extent of this inundation is 90.9 acres less under Alternative 1B – Refined than under Alternative 2A. Sensitive habitats subject to grading/dredging or inundation are expected to recover and mature within 5 to 10 years following restoration. With implementation of Alternative 1B – Refined, the lagoon would experience improved water quality and hydrologic function and increased foraging habitat, which would be a beneficial impact to species.

## **Salinity Gradient**

Low salinity conditions within the lagoon are the result of muted tidal exchange, impounded freshwater, and poor circulation throughout the lagoon. Overall, salinity levels in the lagoon

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depend on efficient tidal exchange, with better circulation resulting in more rapid salinity recovery. During construction of Alternative 2A, direct, temporary changes would occur to the salinity levels within the lagoon. Temporary flooding during construction of Alternative 2A would result in localized increases in salinity within impounded areas as ocean water captured during high tide inflow would be used to inundate flooded areas. Salinity levels would become more balanced once each area is reopened to tidal flow and regular tidal exchange is established.

Upon project completion, Alternative 2A would result in increased tidal exchange by constructing a new, larger, and more stable inlet. The new inlet would provide less muted flow directly into lagoon channels. Additionally, the larger cross-sectional profile area of the dredged channels would offer less resistance to tidal fluctuation and allow a greater volume of tidal exchange, giving the lagoon a greater opportunity to flush more readily than existing conditions. This inlet would provide additional circulation to the east basin, as well as throughout the central and west basins through the extension of the existing channel network. Alternative 2A would result in a substantially larger tide range than currently exists in the lagoon, providing a range very close to the open ocean, essentially eliminating the muting effects of the current lagoon inlet. The predicted tidal range in the east basin would be 7.88 feet NGVD under Alternative 2A, compared to an ocean tidal range of 7.97 feet (see Table 17). Salinity levels would generally increase across the lagoon basins but would maintain balanced levels with regular mixing between ocean and freshwater. Improved drainage would also allow salinity levels in the lagoon to recover to normal ocean conditions more rapidly following storm events due to improved circulation. Regular tidal action and improvement of the hydraulic efficiency of the lagoon would provide improved water quality conditions and would help to prevent extreme fluctuations in salinity, thereby managing potentially damaging long-term salinity reduction. Vegetation within lagoon would adapt to higher/more balanced salinity levels. Alternative 2A would result in a beneficial impact to salinity conditions compared to existing conditions.

Construction of Alternative 1B – Refined would result in temporary direct changes to the salinity levels within the lagoon. Temporary flooding during construction of Alternative 2A would result in localized increases in salinity within impounded areas, the extent of which would be 90.9 acres less under Alternative 1B – Refined than Alternative 2A. Salinity levels would become more balanced once each area is reopened to tidal flow and regular tidal exchange is established.

Upon project completion, Alternative 1B – Refined would result in increased tidal exchange and a larger tidal range than currently exists within the lagoon. The predicted tidal range in the east basin would be 5.43 feet NGVD under Alternative 1B – Refined, compared to an ocean tidal range of 7.97 feet (see Table 17). Changes to lagoon salinity levels post-restoration, and vegetation adaptations to those changes, would be similar to those described for Alternative 2A.

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Alternative 1B – Refined would result in a beneficial impact to salinity conditions compared to existing conditions.

## **4.2 BIOLOGICAL IMPACTS**

### **4.2.1 THREATENED AND ENDANGERED SPECIES IMPACTS**

Direct and indirect effects of the project alternatives on federally threatened and endangered species and their critical habitat are discussed in detail in the Preface and Section 3.6 of the Final EIR/EIS.

#### **4.2.1.1 Plants**

No federally listed threatened or endangered plant species occur within the areas proposed for restoration. Therefore, Alternatives 2A and 1B – Refined would have no effect on federally listed as threatened or endangered plant species.

#### **4.2.1.2 Wildlife**

##### **Coastal California Gnatcatcher**

As part of project construction of Alternative 2A, an access road along the southwest corner of the central basin would need to be widened to accommodate construction vehicular traffic. Additionally, brush clearing may be needed along a small eastern footpath. Gnatcatchers located adjacent to the access road and footpath could be directly affected during vegetation removal. To avoid direct impacts to nesting gnatcatcher, all vegetation clearing would be limited to outside of the bird breeding season (typically between February and September). Outside of the nesting season, resident gnatcatchers may be present in the area; however, due to their high mobility, clearing of vegetation out of the breeding season, coupled with the presence of a bird monitor, direct impacts to gnatcatcher associated with vegetation clearing are not considered substantial or adverse. Permanent direct impacts to coastal California gnatcatcher occupied habitat are expected to be approximately 2.54 acres with Alternative 2A. Future nesting in those areas is expected to continue following improvement of the access road. Impacts associated with the loss of occupied habitat are not considered substantial and would not result in a decline in the local population below self-sustaining levels.

Coastal California gnatcatcher could be subject to indirect effects as a result of night lighting and increased ambient noise due to construction equipment. Lighting would be minimal at night, as construction would be limited to dredge operation only. To reduce indirect lighting effects,

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lighting would be shielded away from sensitive habitats. An increase in ambient noise levels could disrupt normal nesting, breeding, and foraging behavior. The loudest continuous noise would be generated by dredging activities that are proposed to occur up to 24 hours a day for the duration of construction. Gnatcatcher occupy sage scrub and chaparral habitats at the edge of the lagoon, and would be less affected by noise than those species occurring within the impact footprint. Noise impacts would be less pronounced within the louder areas of the lagoon near the roads (i.e., lagoon edge) as opposed to the quieter areas of the lagoon. The greatest impact from noise would occur within the first 200 feet of equipment and would dissipate exponentially with distance. The dredge would be mobile in the lagoon and the potential for noise impacts would travel with the machinery. Additionally, the dredge is slow moving and construction would occur in one basin at a time; therefore quieter habitat would be available for birds to relocate. However, relocation during the breeding season is not feasible for nesting birds. While birds within the lagoon are already subject to elevated ambient noise levels due to the numerous transportation corridors that traverse the lagoon (i.e., I-5, Manchester Avenue, Coast Highway 101, and the NCTD railroad), there is still a potential for construction noise to indirectly affect breeding and foraging behavior of gnatcatcher.

In summary, construction activities within coastal California gnatcatcher occupied habitat, and permanent and temporary losses of foraging and nesting habitat associated with Alternative 2A are not expected to adversely affect coastal California gnatcatcher. Project design features identified above and any additional requirements specified in the Biological Opinion from the USFWS for the project would minimize impacts to coastal California gnatcatcher.

Direct and indirect impacts under Alternative 1B – Refined would be similar, but slightly less than Alternative 2A, because the sage scrub and chaparral habitats are mostly around the periphery of the lagoon where the alternatives have similar development features. Permanent direct impacts to coastal California gnatcatcher occupied habitat are expected to be approximately 1.9 acres under Alternative 1B – Refined.

### **California Least Tern and Western Snowy Plover**

Under Alternative 2A, there is a potential for direct and indirect impacts to California least tern and western snowy plover. There is the potential to cause short-term direct impacts to foraging and roosting California least tern and western snowy plover during construction activities associated with dredging/grading and controlled inundation activities. Approximately 50 percent of California least tern, and 74 percent of western snowy plover foraging habitat would be impacted as a result of construction for Alternative 2A. All impacts to foraging habitat would be phased across the three lagoon basins, helping to minimize impacts to foraging habitat by allowing large contiguous areas of foraging habitat to remain at any given time during

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construction. In the long term, foraging habitat area and condition for both species would be expected to improve as a result of restoration due to tidal influx and improved benthic community. The improved conditions would result in higher productivity in the restored mudflats and direct benefits to birds that forage in them, such as the western snowy plover. Similarly, the improved hydrologic and water quality conditions are expected to have a long-term positive effect on fish and benthic communities, which would benefit both species. Therefore, direct impacts to western snowy plover and California least tern foraging are considered temporary and less than significant.

With the implementation of Alternative 2A, suitable nesting habitat for California least tern would decrease by 6.8 acres (16.1 percent) and nesting habitat for western snowy plover would decrease by 7.2 acres (16.9 percent). As neither species currently breeds on-site, therefore, the habitat is considered unoccupied and no direct impact to breeding/nesting is expected to occur.

Indirect effects to California least tern and western snowy plover may include degraded water quality, disturbed unconsolidated sediment, night lighting, and noise. During project construction, least tern and western snowy plover may be exposed to degraded water quality resulting from dredging and other sediment-disturbing activities. These activities may increase turbidity (refer to Section 4.1.4 of this document) and presence of unconsolidated sediments, which could lower visibility and make foraging more difficult. The increase in turbidity and unconsolidated sediments, resulting in lowered visibility would occur relatively close to the active dredge and other construction activities and would dissipate with distance and would reconsolidate within a short amount of time (hours to a few days). Additionally, other basins not under active construction or controlled inundation in the phasing scheme would be available for foraging. California least tern and western snowy plover may also be subject to indirect noise and night lighting effects similar to coastal California gnatcatcher as discussed in the previous section.

In summary, construction activities within California least tern and western snowy plover habitat, and permanent and temporary losses of nesting habitat associated with Alternative 2A are not expected to adversely impact California least tern and western snowy plover. Beneficial long-term impacts to California least tern and western snowy plover are anticipated to occur with the improved foraging habitat that is expected with implementation of the project.

California least tern and western snowy plover would experience impacts to greater than 50 percent of their foraging habitats under Alternative 1B – Refined. Alternative 1B – Refined would result in fewer impacts to western snowy plover foraging habitat by 20 percent. However, similar to Alternative 2A, impacts to foraging habitat would be phased across the three lagoon basins and within each basin, so that large contiguous areas of foraging habitat would remain.

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Although short-term impacts to foraging habitat would occur, benefits are also expected as lagoon conditions improve. The improved conditions would result in higher productivity in the restored mudflats and subtidal habitat and direct benefits to the California least tern and western snowy plover. Alternative 1B – Refined would decrease unoccupied nesting habitat for California least tern and western snowy plover by 2.9 acres (7 percent) and 3.3 acres (8 percent), respectively. Beneficial impacts to foraging habitat for these species would be similar to those described under Alternative 2A.

### **Light-Footed Ridgway's Rail**

Alternative 2A would result in direct and indirect impacts to light-footed Ridgway's rail. Within the project area, occupied light-footed Ridgway's rail habitat includes low-marsh and coastal brackish marsh habitats. Approximately 28 percent of existing occupied nesting habitat would be impacted during construction activities (grading and controlled inundation) under Alternative 2A. Direct impacts would affect both low-marsh and brackish marsh habitat.

Light-footed Ridgway's rail are year-round residents in the lagoon and are considered difficult to flush; therefore, the potential exists for direct mortality during vegetation removal. In an effort to avoid direct take of this species, the project would take advantage of natural behavior in which Ridgway's rail move to high elevations during inundation events. Additionally, vegetation would be removed and phased inundation would occur outside of the breeding season, which would allow birds time to establish new breeding territories in unimpacted habitat. The project would also implement a habitat enhancement plan to allow for additional refugia during construction when suitable habitat areas would be reduced. Post-restoration, Alternative 2A would result in a net loss of occupied nesting habitat acreage for light-footed Ridgway's rail by 24.8 acres (18 percent decrease) relative to existing conditions. Alternative 2A would result in an expansion of Ridgway's rail preferred habitat (i.e., low marsh), which is currently limited in the lagoon, by 10 acres compared to existing conditions. Additionally, changes in lagoon hydrology under Alternative 2A would improve the condition of the remaining foraging and nesting habitat by improving tidal flushing which is expected to improve water quality and enhance the benthic community in foraging habitats.

The net loss of nesting habitat under Alternative 2A is considered an adverse impact; however, the reduction in nesting habitat would not substantially affect the long-term sustainability of the existing Ridgway's rail population within the lagoon. Ultimately, the project is expected to benefit existing light-footed Ridgway's rail populations within San Elijo Lagoon.

Indirect short-term/temporary effects to light-footed Ridgway's rail may include increases in exposure to predators, degraded water quality, disturbed unconsolidated sediment, night lighting,



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and noise. Refer to the Coastal California Gnatcatcher section above for discussion of indirect night lighting and noise effects and the California Least Tern and Western Snowy Plover section for discussion of indirect water quality and disturbed unconsolidated sediment effects. During construction, and as habitat becomes reestablished on-site, individuals may be exposed to higher predation as they would be more concentrated in the remaining un-impacted habitat located along the perimeter of the lagoon.

In summary, construction activities within light-footed Ridgway's rail habitat, and permanent and temporary losses of nesting and foraging habitat associated with Alternative 2A are not expected to negatively impact the existing light-footed Ridgway's rail population and their suitable habitat. Project design features identified above and any additional requirements specified in the Biological Opinion from the USFWS for the project would minimize impacts to light-footed Ridgway's rail and their habitat.

Under Alternative 1B – Refined, light-footed Ridgway's rail would experience impacts to 28 acres (19 percent) and 91 acres (28 percent) of their nesting/foraging and foraging habitat, respectively. These impacts are reduced compared to those under Alternative 2A, which would impact 28 percent and 60 percent of nesting/foraging and foraging habitat, respectively. As with Alternative 2A, impacts to foraging habitat would be phased across the three lagoon basins and within each basin, so that large contiguous areas of foraging habitat would remain. Although short-term impacts would occur, benefits are also expected as lagoon conditions improve. The improved conditions would result in higher habitat productivity and direct benefits to the light-footed Ridgway's rail. Alternative 1B – Refined would increase nesting/foraging habitat by 6.4 acres (4 percent) and would decrease foraging habitat by 28.5 acres (9 percent).

### **Least Bell's Vireo and Southwestern Willow Flycatcher**

Alternative 2A could result in direct impacts to least Bell's vireo and southwestern willow flycatcher through the removal of nesting and foraging habitat through dredging/grading and controlled inundation activities. Alternative 2A would directly temporarily impact 4.9 acres (8 percent) of suitable nesting and foraging habitat (e.g., southern willow scrub riparian habitat). Because both species have been observed in low numbers (fewer than five in any year), and neither species has been documented breeding on-site, the habitats for these birds within the lagoon are not considered occupied. Both least Bell's vireo and southwestern willow flycatcher are migratory birds. Although neither species is known to breed in the lagoon potential impacts to breeding least Bell's vireo and southwestern willow flycatcher would be avoided by limiting riparian vegetation clearing to outside of the bird nesting season. Upon completion of project construction approximately half of the impacted southern willow scrub riparian habitat would be restored.

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Post-restoration, a net loss of foraging habitat would occur; however, since both species occur in low numbers, the permanent loss of 4 percent of southern willow scrub riparian habitat is not substantial and would not result in a decline in the local population below self-sustaining levels.

Least Bell's vireo and southwestern willow flycatcher could be subject to indirect effects as a result of night lighting and increased ambient noise due to construction equipment. Lighting would be minimal at night, as construction would be limited to dredge operation only. To reduce indirect lighting effects, lighting would be shielded away from sensitive habitats. An increase in ambient noise levels could disrupt normal nesting, breeding, and foraging behavior. The loudest continuous noise would be generated by dredging activities that are proposed to occur up to 24 hours a day for the duration of construction. Both species occupy southern willow scrub riparian habitat at the edge of the lagoon and would be less affected by noise than those species occurring within the impact footprint. Noise impacts would be less pronounced within the louder areas of the lagoon near the roads (i.e., lagoon edge) as opposed to the quieter areas of the lagoon. The greatest impact from noise would occur within the first 200 feet of equipment and would dissipate exponentially with distance. The dredge would be mobile in the lagoon and the potential for noise impacts would travel with the machinery. Additionally, the dredge is slow moving and construction would occur in one basin at a time; therefore quieter habitat would be available for birds to relocate to. However, relocation during the breeding season is not feasible for nesting birds. While birds within the lagoon are already subject to elevated ambient noise levels due to the numerous transportation corridors (i.e., I-5, Manchester Avenue, Coast Highway 101, and the NCTD railroad) that traverse the lagoon, there is still a potential for construction noise to indirectly effect breeding and foraging behavior of least Bell's vireo and southwestern willow flycatcher.

In summary, construction activities within least Bell's vireo and southwestern willow flycatcher habitat, and permanent and temporary losses of riparian habitat associated with Alternative 2A are not expected to adversely impact least Bell's vireo and southwestern willow flycatcher and their suitable habitat. Project design features identified above and any additional requirements specified in the Biological Opinion from the USFWS for the project would minimize impacts to least Bell's vireo and southwestern willow flycatcher and their habitat. Indirect effects due to lighting as expected to be minimal; however indirect effects due to noise are expected to result in adverse effects to both species.

Direct and indirect impacts under Alternative 1B – Refined would be similar to those discussed above for Alternative 2A due to similar development features.

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#### **4.2.1.3 Critical Habitat/Essential Fish Habitat**

Construction of Alternative 2A would directly impact approximately 15 acres of western snowy plover designated critical habitat containing primary constituent elements. Direct impacts to western snowy plover designated critical habitat would be temporary as upon project completion the impacted critical habitat areas would be restored and enhanced (through creation of nesting sites) to provide higher quality habitat for the species. Indirect effects to western snowy plover designated critical habitat are not expected. Coastal California gnatcatcher critical habitat would primarily remain unimpacted during Alternative 2A construction activities and no permanent direct impacts to PCEs are anticipated to occur. Indirect temporary noise and dust impacts to adjacent coastal California gnatcatcher critical habitat are anticipated to be minimal with implementation of Alternative 2A. Water-based construction minimizes dust and noise impacts and no indirect loss of vegetation is anticipated. Alternative 1B – Refined would have the same impacts to western snowy plover and coastal California gnatcatcher critical habitat as Alternative 2A.

Direct and indirect effects to western snowy plover and coastal California gnatcatcher critical habitat are not considered adverse.

#### **Essential Fish Habitat**

Construction of Alternative 2A would result in direct temporary and short-term impacts to EFH associated with grading and dredging operations (e.g., excavation, turbidity, sediment disruption). The project would be phased, allowing for refuge and retaining available habitat at any given time during construction. In addition, the lagoon does not support rocky reefs or eelgrass habitat; therefore, construction impacts would only occur to soft-bottom habitat, which is known to recover quickly. Alternative 1B – Refined would result in similar direct, temporary effects to EFH as Alternative 2A. Direct effects to EFH are considered less than significant for Alternatives 2A and 1B – Refined.

Alternative 2A would result in long-term beneficial effects to EFH because it would create additional acreages of open water, tidal channels, and mudflat habitat, as well as enhance the conditions of existing subtidal habitat by increasing tidal influence within the lagoon. This additional habitat would support local fish populations and therefore would benefit EFH within the project area. Fewer beneficial effects would occur under Alternative 1B as less subtidal habitat would be created. Similar long-term beneficial impacts to EFH would occur under Alternative 1B – Refined as discussed for Alternative 2A. Although fewer acres of open water/subtidal habitat would be created under Alternative 1B – Refined when compared to Alternative 2A, this alternative would still result in additional acreages of open water, tidal

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channels, and mudflat habitat compared to existing conditions, as well as enhance the conditions of existing subtidal habitat by increasing tidal influence within the lagoon when compared to the existing condition. This additional acreage of habitat would also support local fish populations and benefit EFH within the project area. Therefore, no temporary or permanent adverse effects to EFH are anticipated.

#### **4.2.2 FISH, CRUSTACEANS, MOLLUSKS, AND OTHER AQUATIC ORGANISMS IN THE FOOD WEB IMPACTS**

Impacts to fish, reptiles, and amphibian species may include the direct loss of individuals as well as the short-term loss of habitat from grading and inundation under Alternative 2A. Design features that would minimize impacts to resident species include the use of biological monitors, vegetation removal outside of the breeding season, and controlled inundation to help encourage movement to outside the impact area. In addition, project impacts would be phased across the lagoon so that, at any given time, continued foraging and breeding habitat would be available to nonlisted wildlife species. Impacts to resident/breeding species are not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than significant.

Even though the project generally would benefit aquatic species in the long-term by creating improved hydrology and habitat conditions, some water quality instabilities are likely to occur during project construction, which could temporarily affect aquatic organisms. Turbidity within the lagoon would be expected during active construction and maintenance activities. The discharge of dredged or fill material can variously affect populations of fish, crustaceans, mollusks, and other food web organisms through the release of contaminants that adversely affect adults, juveniles, larvae, or eggs, or result in the establishment or proliferation of an undesirable competitive species of plant or animal at the expense of the desired resident species. Suspended particulates settling on attached or buried eggs can smother the eggs by limiting or sealing off their exposure to oxygenated water. Discharge of dredged and fill material may result in the debilitation or death of sedentary organisms by smothering, exposure to chemical contaminants in dissolved or suspended form, exposure to high levels of suspended particulates, reduction in food supply, or alteration of the substrate upon which they are dependent. Mollusks are particularly sensitive to the discharge of material during periods of reproduction and growth and development due primarily to their limited mobility. They can be rendered unfit for human consumption by tainting; by production and accumulation of toxins; or by ingestion and retention of pathogenic organisms, viruses, heavy metals, or persistent synthetic organic chemicals. The discharge of dredged or fill material can redirect, delay, or stop the reproductive and feeding movements of some species of fish and crustacea, thus preventing their aggregation in accustomed places such as spawning or nursery grounds and potentially leading to reduced populations. Reduction of detrital feeding species or other representatives of lower trophic levels

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can impair the flow of energy from primary consumers to higher trophic levels. The reduction or potential elimination of food chain organism populations decreases the overall productivity and nutrient export capability of the ecosystem. Turbidity is expected to dissipate quickly from mixing and dilution, and sedimentation levels would be reduced as a result of the new tidal inlet, which would help to stabilize sediment exchange between the ocean and lagoon.

Long-term beneficial impacts to the lagoon associated with enhanced tidal exchange and flushing, increased water circulation, and improved water quality would occur under Alternative 2A. Alternative 2A would result in the greatest beneficial impacts with the addition of the new tidal inlet, which would maximize tidal exchange and tidal influence within the lagoon. Increased tidal flushing would increase the ability of the lagoon to drain and would reduce the potential for sedimentation within the lagoon. Water quality (nutrients, bacteria, dissolved oxygen) and hydrology throughout the lagoon would be greatly improved with increased circulation, which would improve the overall health of the aquatic environment, resulting in an increase in diversity and abundance of aquatic species.

Similar impacts would occur under Alternative 1B – Refined but would be less than Alternative 2A. Similar long-term beneficial impacts would also occur under Alternative 1B – Refined but would be less than Alternative 2A since the existing inlet would be maintained and tidal exchange, circulation, and overall water quality would be improved to a lesser extent than under Alternative 2A.

#### **4.2.3 OTHER WILDLIFE IMPACTS**

Impacts to other wildlife species described in Section 3.3.3 may include the direct loss of individuals as well as the short-term loss of breeding and nesting areas, escape cover, travel corridors, and preferred food sources from grading and inundation under Alternative 2A. Although these species are considered residents of the lagoon, the majority will breed in areas outside the grading and inundation zone as they are associated with upland habitats; a few species may use habitats within the impact footprint. The project includes various design features to minimize direct impacts to other wildlife species, including resident fauna that may breed on-site. Design features that would minimize direct impacts to resident species include the use of biological monitors, vegetation removal outside of the breeding season, and controlled inundation to help encourage movement to outside the impact area prior to disturbance. In addition, project impacts would be phased across the lagoon so that, at any given time, continued foraging and breeding habitat would be available to other wildlife species. Impacts to resident/breeding species are not expected to result in the decline of any species below self-sustaining levels; impacts are considered less than significant. No long-term impacts to migratory and nonresident wildlife species are expected as the restoration project and the

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corresponding improvements to ecological conditions are considered beneficial to all resident and transient species.

Impacts would be similar under Alternative 1B – Refined, but slightly less than Alternative 2A.

#### **4.2.3.1 Wildlife Corridors/Connectivity**

Implementation of Alternative 2A would result in temporary and short-term impacts to wildlife movement throughout the lagoon during grading, dredging, and controlled inundation operations. However, construction would be phased and occur within discrete locations at discrete timeframes within the lagoon basins, thereby allowing for wildlife movement within adjacent habitat at any given time during construction. No long-term impacts are anticipated. The project area would still function as a large area of natural open space that would allow for wildlife movement similar to existing conditions. Therefore, short-term and long-term impacts to wildlife movement/connectivity are anticipated to be less than significant.

Alternative 1B – Refined has a smaller grading/dredging footprint and requires less inundation; therefore, impacts to wildlife corridors/connectivity would be less than those discussed under Alternative 2A.

#### **4.2.4 SPECIAL AQUATIC SITES**

Implementation of Alternative 2A would result in temporary and short-term impacts to 97.6 acres of special aquatic sites, including coastal salt marsh (low- and mid-), open water, salt panne/open water, and tidal mudflats, during grading and dredging operations, as well as inundation operations. Restoration construction would result in a temporal loss of special aquatic sites, which may threaten local populations of sensitive resident species. However, the project would be phased to minimize impacts to lagoon habitats, allowing for refuge for species and retaining some habitat areas at any given time during construction. Limits on inundation have been placed to minimize impacts due to flooding, including limiting the initiation of habitat flooding to outside the breeding season, utilizing flooding to flush birds where possible prior to clearing and grubbing, and clearing and grubbing within flooded areas. No long-term impacts are anticipated. Subtidal habitat and mudflat within the lagoon would be increased compared to existing conditions. With implementation of Alternative 2A, the lagoon would experience improved water quality and hydrologic function and increased foraging habitat. Therefore, although temporary impacts would occur during construction, long-term impacts to special aquatic sites are anticipated to be less than significant.

Similar impacts would occur under Alternative 1B – Refined; however, it is expected that under Alternative 1B – Refined, the overall system function would recover more quickly than Alternative 2A since more habitat would remain intact due to reduced inundation. under



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Alternative 1B – Refined, 19.2 acres of special aquatic sites would be impacted rather than 97.6 acres under Alternative 2A. Changes in post-restoration habitat distribution would result in an increase in subtidal habitat, primarily in the central and east basins, with a corresponding decrease in mid-salt marsh, salt panne, freshwater/brackish marsh, and riparian habitats, however to a lesser extent than in Alternative 2A. Alternative 1B – Refined would retain more mid-marsh post-restoration than Alternative 2A. This change corresponds to fewer acres of mudflat and open water/tidal channels created post-restoration than Alternative 2A. Intertidal mudflat habitat would be increased relative to existing conditions, with a corresponding decrease in mid-salt marsh. Long-term beneficial impacts would also occur under Alternative 1B – Refined with improved lagoon ecology, increased foraging for species, and no overall loss of lagoon resources.

### **4.3 IMPACTS ON HUMAN USE CHARACTERISTICS**

#### **4.3.1 MUNICIPAL AND PRIVATE WATER SUPPLIES IMPACTS**

Natural recharge of the groundwater table in the project area is primarily from percolation in Escondido Creek, direct precipitation, and infiltration from agricultural and residential uses. Previous studies indicate there is no substantial hydraulic interaction between the groundwater aquifer and the lagoon. It is anticipated that the groundwater aquifer is at depths substantially lower than the alluvial aquifer directly underlying the lagoon, and that measurable exchange between the lagoon and groundwater is limited to this alluvial aquifer. Surface and ground water from the project site are not directed to the intake of a municipal or private water supply; therefore the discharge of fill material in the project site would not directly or indirectly affect the quality of water supplies with respect to color, taste, odor, chemical content, and suspended particulates.

#### **4.3.2 RECREATIONAL AND COMMERCIAL FISHERIES IMPACTS**

The project area does not support recreational or commercial fisheries. Therefore, Alternative 2A and Alternative 1B – Refined would have no direct or indirect effects on recreational or commercial fisheries.

#### **4.3.3 WATER-RELATED RECREATION IMPACTS**

As discussed in Section 3.5.3, the lagoon project area does not support water-related recreation activities (e.g., swimming, wading, diving, fishing, watercraft). Therefore, Alternative 2A and Alternative 1B would have no direct or indirect effects on water-related recreation within the lagoon.

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During construction of the new tidal inlet and installation of CBFs under Alternative 2A, temporary staging and stockpile areas may be located around the perimeter of the lagoon or on the beach; however, these temporary use areas would not impede the use of surrounding beach areas or cause a shortage of available beach area. The temporary staging areas would be removed when the associated construction activity is complete and the beach area is restored.

In addition, during construction of Alternative 2A, the beach area in the vicinity of the new tidal inlet would be temporarily closed to public access. However, other areas of the surrounding beach would still be accessible. In addition, the new inlet location is away from existing surf spots and would therefore not impact existing surfing activities during construction. Upon project completion, it is anticipated that no net change in accessible beach area would occur because the existing tidal inlet channel would close and be replaced with the new channel. Another construction-related effect could include turbidity generated during excavation of the inlet. Excavation would be done “in the dry” from land using excavators and would be controlled sufficiently to prevent turbidity from entering the ocean; therefore, water-related uses (e.g., swimming, surfing) should not be affected. The actual opening of the inlet could result in short-term water quality changes immediately off of the mouth; however, any impacts to water quality are anticipated to be short term (less than a day) and would not cause substantial loss of local water-related opportunities. Under Alternative 2A, permanent CBFs would be installed in the onshore and nearshore beach environment along Cardiff State Beach. The CBFs could create a hazard for beachgoers and swimmers as persons who stray too close to these areas could place themselves in situations that may result in injury should they be thrown against the CBFs, or swept into the inlet or a rip current.

Alternative 2A would serve to enhance lagoon function and associated flora, fauna, and other recreational assets enjoyed by the public and overall project impacts on long-term recreational resources would be generally beneficial.

Alternative 1B – Refined does not include a new inlet or associated CBFs and, therefore, would not impact water-related recreation at the beach.

#### **4.3.4 AESTHETICS IMPACTS**

Lagoon restoration activities associated with Alternative 2A would generally consist of dredging and grading within the lagoon, modifying existing lagoon inlet/channels, disposing of sediments excavated from the lagoon at different locations, and restoring graded areas within the lagoon to facilitate recovery of habitat. Construction vehicles would traverse nearby roads each day and be visible within the lagoon, and it is possible that some activities, such as dredging, may occur 24 hours a day and require night lighting. However, the construction phase would be temporary,

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lasting approximately 36 months. The proposed project would also require regular maintenance so equipment would be periodically visible during the post-construction time period.

Views by visitors to the lagoon during project construction would be dominated by heavy machinery engaged in ground-disturbing construction activities and dust emissions. During construction, the visual character of the project site would change substantially from existing conditions. Vegetation would be removed from a large portion of the central basin and substantial landform alteration would occur. Individuals viewing the project from this area would likely be sensitive to changes in the visual environment; however, access would be limited in this area and construction would only occur temporarily. Construction would likely disrupt normal wildlife use in the immediate vicinity, but this change would be temporary, and wildlife-viewing opportunities would be available at other areas within the lagoon. Because Alternative 2A involves the greatest amount of dredging and associated construction activities, along with construction of the new inlet and new Highway 101 bridge, this alternative would have the highest magnitude of temporary visual impacts of the two alternatives.

Once operational, as vegetation in the lagoon becomes reestablished at the new elevations/grade (5 to 10 years post-restoration), the visual character of the lagoon would become similar to the existing pre-construction conditions but would host a wider variety of native vegetation and lagoon habitats of visual interest. Conditions would return due to active restoration as well as natural recruitment. There would be more open water visible and the mosaic of water, mudflats, and vegetation would return. Users of the trails and Nature Center and scenic viewers would experience an open, natural system similar in character to the present condition.

Under Alternative 2A, construction of the new inlet and CBFs on either side would be highly visible and a contrast to the current beach character. While the CBFs would be partially buried through portions of the year and would be treated with a faux finish to mimic natural material, the CBFs would introduce a new permanent built, linear feature perpendicular to Coast Highway 101 extending several hundred feet toward the ocean. The contrast would be strong for some viewers and is considered a permanent significant adverse visual impact. Alternative 1B – Refined does not include a new inlet or CBFs and would require less dredging and associated construction activities relative to Alternative 2A; therefore, impacts to aesthetics would be less under Alternative 1B – Refined.

#### **4.3.5 PARKS, NATIONAL AND HISTORIC MONUMENTS, NATIONAL SEASHORES, WILDERNESS AREAS, RESEARCH SITES, AND SIMILAR PRESERVES IMPACTS**

As discussed in Section 3.5.5, the lagoon is designated as an Ecological Reserve by CDFW and as an SMCA under the MLPA. The lagoon is also designated as ecological resource/open space/park by the City of Encinitas General Plan (City of Encinitas 1986).

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Encroachment and use permits for construction activities would be established prior to construction of the project, under Alternative 2A or 1B – Refined, to ensure compatibility between CDFW uses and the project. In addition, the State Lands Commission would require a lease agreement for access. Therefore, the Reserve is expected to be minimally impacted by the project. Implementation of Alternatives 2A or 1B – Refined would not directly or indirectly modify the educational, historical, recreational, and/or scientific qualities for which the lagoon is set aside and managed.

As described in Sections 4.3.3 and 4.3.4, the new inlet and CBFs associated with Alternative 2A only, would result in permanent visual changes and increased public hazards along Carlsbad State Beach.

#### **4.4 DETERMINATION OF CUMULATIVE EFFECTS ON WATERS OF THE U.S.**

Cumulative effects associated with the project are described in detail in Section 5.0 of the SELRP Final EIR/EIS. The SELRP Final EIR/EIS had determined there would be a less than significant cumulative impact on land use/recreation, hydrology, oceanography/coastal processes, water and aquatic sediment quality, geology/soils, cultural resources, paleontological resources, socioeconomics/environmental justice, public services and utilities, hazardous materials and public safety. The SELRP Final EIR/EIS also found that cumulative impacts were significant and unavoidable after implementing mitigation measures for biological resources; visual resources; traffic, access, and circulation; noise; air quality; and global climate change and greenhouse gas emissions.

The majority of the cumulative effects would persist only throughout the duration of the construction period as they are a result of construction-specific actions. Ultimately, these short-term effects would cease to contribute to a cumulative impact. Examples of cumulative effects that would end after construction include disturbance of bird species due to construction noise, visual impacts of construction equipment in the lagoon, traffic congestion due to Highway 101 bridge work, and construction-related pollutant emissions. Permanent cumulative effects would include the ongoing air quality emissions that would result from maintenance activities (under Alternative 2A only).

The geographic scope of the cumulative analysis generally consists of the coastal areas in proximity to San Elijo Lagoon. This geographic area was chosen because many of these projects are located in proximity to the project study area along the Encinitas and Solana Beach coastlines and provide a meaningful cumulative analysis. However, some may be more distant dependent on the potential for overlapping impacts. As discussed above, a small amount of long-term loss of jurisdictional resources would be caused by either alternative, which would immediately be

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offset by the additional jurisdictional resources enhanced. In addition, both alternatives would improve/enhance jurisdictional resources compared to existing conditions. A 404 permit would be required for the project under either alternative, containing permit conditions that would ensure that impacts of this project on waters of the U.S. were minimized, and any cumulative impacts from the issuance of such permits also would be minimized. Construction and maintenance of the other past, present, or reasonable foreseeable projects could result in significant cumulative impacts on biological resources associated with the loss of habitat and individuals of special-status species, disturbance or loss of riparian or other sensitive habitats, and adverse effects on sensitive lagoon habitats. This cumulative impact would be mitigated over time as the habitats were restored and beneficial habitat impacts would result from the enhanced and restored lagoon function. While some similar adverse biological impacts would occur with the proposed lagoon restoration, they are not considered to combine with other cumulative projects to create a significant impact because of the overall positive beneficial biological results that would occur from the construction of this project. Feasible mitigation measures would reduce potential impacts of other projects, and implementation of avoidance and minimization measures (i.e., habitat enhancement plan, refugia areas, clearing and grubbing outside of nesting season) would reduce the project's contribution to cumulative impacts on biological resources.

#### **4.5 DETERMINATION OF LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE (LEDPA)**

Implementation of the SELRP would result in certain trade-offs in terms of temporary impacts to achieve the positive long-term benefits of improved lagoon functions and services. While restoration activities would temporarily affect emerging habitats (e.g., low-marsh in the central basin), long-term benefits would include improved lagoon function resulting in a connected gradient of balanced habitat types; improved lagoon hydraulics, such as decreased water residence time resulting in decreased bacterial levels; improved water quality with the removal of nutrient-rich sediments; and improved hydrologic connectivity. Alternative 2A would require the largest amount of dredging and material removal and would include construction of a new bridge and inlet. These activities would result in a higher degree of adverse impacts to waters of the U.S., physical substrate, water circulation and drainage patterns, threatened and endangered species, and aesthetics when compared to Alternative 1B – Refined. However, the high volume of grading/dredging associated with Alternatives 2A and 1B – Refined would increase the beneficial impacts of the project, such as improved hydrologic function and drainage patterns, and healthier lagoon water quality and habitats. Alternative 2A would result in approximately a 12-acre long-term loss of jurisdictional waters of the U.S., and Alternative 1B – Refined would result in approximately a 10-acre loss of jurisdictional waters of the U.S.; however, conditions of the remaining jurisdictional waters and wetlands within the lagoon would be enhanced with improved hydrologic conditions and a more balanced and sustainable gradient of habitat, which

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would improve overall habitat conditions and functions. Alternative 2A would provide a maximum achievable tidal range and increased circulation, improved water quality and hydrologic conditions, and decreased nutrient loading and sedimentation throughout the lagoon. Alternative 1B – Refined provides greater low-marsh habitat post-restoration while creating a gradient of balanced habitat types. This low-marsh would maintain a balance with unvegetated intertidal mudflats and would provide greater opportunity for population increase and/or redistribution in the central basin for the light-footed Ridgway’s rail. Alternative 1B – Refined does not necessitate a new inlet and requires less infrastructure improvements, which would result in fewer coastal impacts. In addition, Alternative 1B – Refined would result in fewer temporary impacts than Alternative 2A. Refinements incorporated into the project would result in reduced impacts from inundation, minimized soil compaction and resultant impacts to the benthic community, and more rapid post-construction recovery for the lagoon system as a whole. Alternative 1B – Refined would offer similar long-term environmental benefits (i.e., improved habitat and water quality, increased balance of habitats, and sustainability) compared to Alternative 2A, and would meet the overall project purpose. While Alternative 1B – Refined may not provide as much benefit in the areas of tidal influence, water quality, and hydrology, it provides greater benefit to Ridgway’s rail, and results in less temporary and permanent impacts as discussed in Sections 4.1 through 4.4.

For these reasons, Alternative 1B – Refined is therefore determined to be the LEDPA.



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## 5.0 ACTIONS TO MINIMIZE ADVERSE EFFECTS

The project purpose is to restore/improve aquatic habitat in San Elijo Lagoon; therefore, the majority of impacts on waters of the U.S., while permanent (because the project would alter the elevation), would also result in beneficial impacts to the lagoon (improved tidal flow and healthier lagoon habitats). Conditions of the remaining jurisdictional waters and wetlands within the lagoon would eventually be enhanced through improved hydrologic conditions and a more stable, connected gradient of balanced habitat types, which would improve overall wetland conditions and functions. Lagoon habitats would be converted from one aquatic resource habitat type to another. A small number of impacts would result in a long-term loss of waters of the U.S. under Alternative 1B – Refined (the LEDPA) to provide additional resiliency under sea level rise. The project would also, however, result in an increase in open water/tidal channels, low-marsh, mudflat, and man-made transitional habitat compared to existing conditions, which would result in a more sustainable gradient of balanced habitat types in the lagoon.

Temporary impacts would also occur during construction from components such as staging areas and crossings, and all temporarily impacted areas would be restored to pre-project conditions. A number of project design features have been incorporated into the project to minimize and avoid impacts to resources while supporting the overall restoration objectives of the project. These features, which are detailed in Table 2-26 of the SELRP Final EIR/EIS (AECOM 2015), are summarized in the Avoidance and Minimization section below.

### Avoidance and Minimization

The SELRP is a restoration project designed to enhance the lagoon system as a whole. Due to the nature of the project, an effort has been made to proactively incorporate “project design features” into each of the alternatives to minimize and avoid, where possible, impacts to resources. Some project design features are incorporated to avoid or minimize a potential significant impact proactively through design, but others are additional measures that support the overall restoration objectives of the project without being tied to a specific potential impact.

Many of the project design features are intended to avoid and minimize construction-related impacts to the biological resources present in the lagoon. Construction activities would be timed and managed to minimize impacts to sensitive species, and a Biological Monitor would be present during construction to ensure all possible minimization efforts are undertaken. Impacts to habitats would be minimized by establishing sensitive “no-construction zones” and by siting staging areas and access roads in already disturbed areas. Precautionary activities would include flooding or flushing of habitat areas before clearing and grubbing in order to encourage wildlife relocation. To minimize impacts to light-footed Ridgway’s rail and Belding’s savannah sparrow

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more specifically, a targeted habitat enhancement plan would be put in place to provide refugia during construction.

During construction, measures would also be implemented to minimize impacts to local residents and visitors. Construction areas would be well marked and all equipment and vehicles would remain within these limits to reduce public safety hazards. Access to lagoon trails and beaches would be restricted only to the extent necessary for public safety, and alternative routes would be maintained whenever possible. Contractors would be required to minimize noise and light impacts on local residents. Finally, a public information program would be implemented to reduce land use incompatibilities caused by construction and provide the public with current information about the project.

## **Ongoing Monitoring, Maintenance and Adaptive Management**

### ***Monitoring***

Implementation of the SELRP would require a comprehensive monitoring program to ensure increased lagoon functions and services are achieved and maintained into the future. The program would be primarily focused on the lagoon itself and would include pre- and post-construction monitoring, as well as monitoring for longer-term maintenance. Monitoring objectives would focus on ensuring compliance with project features and measures, particularly with respect to biological resources, water quality, and cultural resources. After construction is completed, ongoing monitoring would be focused on the lagoon restoration component and designed to document achievement of project goals and objectives, including habitat improvements for plants and wildlife, success of revegetation efforts, and use of the site by sensitive species.

The applicant has prepared a Mitigation Monitoring and Reporting Program, which quantifies and describes the mitigation measures for the SELRP. The project also includes provision for a Monitoring and Adaptive Management Plan. The Final EIR/EIS includes an initial draft of this document in Appendix Q Conceptual Restoration Plan. This document would govern operations of the project and the collection of monitoring data to assess the effectiveness toward the various goals and objectives of the program.

The monitoring program, described in more detail in Section 2.11 of the SELRP Final EIR/EIS, would also provide an implementation plan to ensure the successful restoration of wetlands, including restoration of all areas of temporary impact. The program would include a restoration work plan with recommended methodologies for site preparation, seeding/planting, irrigation, etc.; a maintenance plan; specific monitoring and reporting requirements, including site

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performance standards, and a description of long-term management of the restoration sites. This analysis would also be used to inform potential future adaptive management decisions and actions. The post-construction monitoring phase would identify a 5- to 10-year period that would focus on meeting restoration permit conditions and/or success criteria. Once those criteria are met, monitoring and management would shift over to the long-term program focused on adaptive management discussed below.

### ***Maintenance and Adaptive Management***

The restoration plan would include both the anticipated maintenance regime and an adaptive management plan. Long-term monitoring would be an integral part of an adaptive management program established to guide maintenance strategies into the future.

The maintenance plan would identify those areas of the lagoon that are anticipated to require periodic maintenance, such as inlet or subtidal basin maintenance and/or dredging, or less frequent channel maintenance in other areas of the lagoon. The adaptive management plan would identify remedial measures that may be implemented if success criteria put in place as part of the project or permit conditions are not met or if conditions change during long-term monitoring and need to be addressed. Some of these actions may include, but are not limited to, experimental planting of certain areas, additional dredging, replanting of salt marsh and transitional habitats, and amendment of soils. Detailed plans would be developed as part of consultation with permitting and natural resource agencies during the permitting approval process; however, it is anticipated that the long-term management plan would be a living document and would be updated regularly, as necessary. General components associated with the adaptive management strategy are described below.

1. **Replacement Planting.** Planted material that fails to become established would be replaced with similar plant species. Replacement vegetation would be installed between October 1 and March 31, to the extent possible.
2. **Weed Abatement.** Weedy species would be removed from the restoration site frequently so they do not compete with the establishment of native plantings.
3. **Trash Removal.** Trash would be removed and disposed of in an acceptable manner, e.g., trash bins or landfill.
4. **Bank Protection Repair.** Should severe storms or other events result in damage to bridge and channel armor, repairs would be completed.

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5. **Biological Monitoring and Maintenance of Habitat Quality.** Regular biological monitoring would be conducted to ensure that the wetlands meet biological goals. These activities would include:
- habitat protection and posting of No Trespassing signs,
  - enforcement of regulations associated with the restoration of the wetlands and protection of listed species,
  - control of nonnative invasive plant species by mechanical and chemical means as appropriate, and
  - control of feral/exotic animal species using trapping and barriers as appropriate.
6. **Nesting Areas/Breeding.** A comprehensive program of inspection and maintenance of sensitive species breeding and nesting areas would be included as part of the biological monitoring program. Nesting area management would require both regular control of excessive, especially weedy vegetation, and of predators in the surrounding urban environment.
7. **Threatened and Endangered Species.** Species-specific monitoring and management objectives would be established in conjunction with the resource agencies for threatened and endangered resident species. Measures may include ongoing surveys, habitat improvements, predator control, or other activities for the benefit of the species.
8. **Inlet Maintenance.** In addition to potential closure of the inlet by sediment transported during an extreme storm event, the regular flood and ebb currents moving through the inlet would build a flood shoal in the interior of the inlet. These sediment deposits in the flood shoal can change the habitat distribution within the wetlands by reducing the tidal range and/or by raising the elevations. As part of the adaptive management program, criteria establishing thresholds for initiating inlet maintenance would be developed.
9. **Channel Maintenance.** While maintenance of the inlet itself is anticipated to occur as frequently as every year, depending on the alternative, vegetation encroachment or sediment accumulation could occur in portions of lagoon channels over time. Maintenance of focused areas within lagoon channels is anticipated approximately every 10 years but would be tied to specific thresholds for initiating maintenance activities, which could involve vegetation removal and hauling from the site, or sediment removal through dredging small areas of the lagoon.

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## **Compensation**

The purpose of the SELRP is to restore wetland habitat within San Elijo Lagoon. While there would be permanent impacts to waters of the U.S., project implementation would result in improved water quality and a more stable and connected gradient of balanced habitat types. Habitats within the project area would not be developed, but rather converted from one wetland habitat type to another. The 10 acres of permanent, direct impacts that would result in a loss of waters of the U.S. under Alternative 1B – Refined (the LEDPA) would occur due to the construction of transitional areas that would provide the lagoon with additional resilience against sea level rise. Due to the beneficial nature of the project for water quality, wildlife habitat, and special-status wildlife species, implementation of Alternative 1B – Refined (the LEDPA) would represent a net increase in lagoon functions and services. Additionally, the Corps would review and approve the adaptive habitat management plan that would be developed with this project and require monitoring reports to be available for Corps review upon request to ensure that habitat restoration is successful and functioning as intended. Therefore, no project-specific compensatory mitigation for impacts on jurisdictional wetlands and waters of the U.S. is required.

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**ATTACHMENT A**  
**CRAM METRIC AND ATTRIBUTE DATA**





ATTACHMENT A. CRAM Metric and Attribute Data

Attribute	AA Name	WB1	WB4	WB5	CB04	CB06	CB08	CB12	CB13	CB31	CB33	CB37	CB38	CB40	CB48	CB60	CB64	CB72	CB73	EB36	EB02	EB33	EB34	EB63	EB65	EB75
Buffer & Landscape Connectivity	Landscape Connectivity	9	12	9	6	9	9	9	9	9	12	12	9	9	12	9	6	9	6	9	6	9	9	6	6	3
	% AA with Buffer	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	12	12	12	12	12
	Average Buffer Width	12	9	12	9	12	12	12	12	9	12	12	12	12	12	12	12	12	9	9	12	12	12	12	12	12
	Buffer Condition	9	9	9	9	9	9	9	12	9	9	12	12	12	12	12	12	12	6	12	12	9	9	9	9	9
	Attribute Score Raw	19	22	19	16	19	19	19	21	19	22	24	21	21	24	21	18	21	14	20	17	19	19	16	16	13
	Attribute Score Final	78	90	81	65	81	81	81	88	78	93	100	88	88	100	88	75	88	58	84	72	81	81	68	68	56
Hydrology	Water Source	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	Hydroperiod/Channel Stability	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	3	6	12	12	12	12	12
	Hydrologic Connectivity	3	3	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	9	9	9	9	9
	Attribute Score Raw	18	18	18	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	15	15	27	27	27	27	27
	Attribute Score Final	50	50	50	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	42	42	75	75	75	75	75
Physical Structure	Structural Patch Richness	9	6	3	9	9	9	12	6	9	12	6	6	12	6	9	9	9	9	12	6	3	3	3	3	3
	Topographic Complexity	12	6	3	9	6	9	6	3	12	9	3	6	12	9	9	3	9	6	12	3	6	3	3	6	6
	Attribute Score Raw	21	12	6	18	15	18	18	9	21	21	9	12	24	15	18	12	18	15	24	9	9	6	6	9	9
	Attribute Score Final	88	50	25	75	63	75	75	38	88	88	38	50	100	63	75	50	75	63	100	38	38	25	25	38	38
Biotic Structure	Number of Plant Layers	9	9	9	9	9	9	9	12	12	9	9	9	12	9	9	6	9	12	9	12	9	6	9	9	12
	Number of Co-dominant Species	12	12	12	6	9	9	6	12	12	12	6	6	12	9	6	6	6	12	3	12	6	6	3	9	12
	Percent Invasion	9	12	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	9	12	12	12	12
	Plant Community Metric	10	11	10	9	10	10	9	12	12	11	9	9	12	10	9	8	9	12	8	11	8	8	8	10	12
	Horizontal Interspersion & Zonation	9	9	3	6	3	3	6	9	9	9	3	3	9	3	6	3	6	9	3	3	6	6	9	9	12
	Vertical Biotic Structure	12	6	12	12	9	12	12	12	12	9	12	12	12	12	12	3	9	12	12	3	6	3	9	6	6
	Attribute Score Raw	31	26	25	27	22	25	27	33	33	29	24	24	33	25	27	14	24	33	23	17	20	17	26	25	30
	Attribute Score Final	86	72	69	75	61	69	75	92	92	81	67	67	92	69	75	39	67	92	64	47	56	47	72	69	83
OVERALL AA SCORE:		75	66	56	68	66	71	72	69	79	80	66	66	84	73	74	56	72	68	72	49	62	57	60	63	63



**APPENDIX P**

**PUBLIC COMMENT LETTERS AND RESPONSES**



## **APPENDIX P**

### **PUBLIC COMMENT LETTERS AND RESPONSES**

#### **LIST OF PERSONS, ORGANIZATIONS, AND PUBLIC AGENCIES THAT COMMENTED ON THE DRAFT EIR/EIS**

A draft version of this EIR/EIS was circulated for a 60-day public review from August 1, 2014 to September 29, 2014. The following is a list of the persons, organizations, and public agencies that commented during the public review period.

In the instances where a commenter provided their comments independently to both the CEQA and NEPA contact and the comments were identical, only one of the letters has been included to avoid repetition. All correspondence is available as part of the administrative record.

Occasionally, there are references to other appendices and other documents in the responses to comments in this appendix. References specific to Appendix P are located on the last page of this Appendix. References to appendices and other documents included in the EIR/EIS are identified in the EIR/EIS Table of Contents or Chapter 9 Literature Cited. In addition, refinements have been incorporated into Alternative 1B since release of the Draft EIR/EIS. Alternative 1B – Refined represents Alternative 1B with engineering and construction method refinements reflecting public comments and agency input, as identified in the Preface. Implementation of Alternative 1B – Refined would not result in any new significant environmental impacts, nor in impacts with severity substantially increased beyond that disclosed for Alternative 1B in the Draft EIR/EIS. In this appendix, references to Alternative 1B are applicable to Alternative 1B-Refined, unless otherwise noted.

#### **Federal Agencies**

U.S. Department of the Interior (USFWS)  
Environmental Protection Agency (NEPA only)

#### **Letter**

A  
B

#### **State Agencies**

California Coastal Commission  
California Department of Fish and Wildlife  
California Department of Parks and Recreation  
California State Coastal Conservancy  
California State Transportation Agency  
State Lands Commission  
Office of Planning and Research

#### **Letter**

C  
D  
E  
F  
G  
H  
I

**County, City, and Other Local Agencies**

	<b><u>Letter</u></b>
San Diego Association of Governments	J
City of Encinitas (1)	K
City of Encinitas (2)	L
North County Transit District	M
City of Solana Beach	N

**Organizations**

	<b><u>Letter</u></b>
Surfrider Foundation, San Diego County Chapter	O
Seiurus Biological Consulting	P
Littoral Ecological and Environmental Services	Q
Marathon Construction Corporation	R
TC Construction Company	R
Alliant Insurance Services, Inc.	T
Associated General Contractors, San Diego Chapter	U
Vulcan Materials	V
Flat Iron Construction Corporation	W

**Individuals**

	<b><u>Letter</u></b>
Matthew Midura	X
Carolyn Glockhoff	Y
Jerry Green	Z
Jayne Lesley	AA
Nick Jansson	BB
Lisa Hamilton	CC
Paul and Eva Linke	DD
Catherine Blakespear	EE
Jeffrey F Petit	FF
P. Gretchen Nell	GG
John Metzger	HH
Nancy Tomich Zapp	II
Ann Pogue	JJ
Robert Patton	KK
Annie Hawkins	LL
Paul Henkart	MM

## **DISPLAY OF COMMENT LETTERS AND RESPONSES**

The following pages display all of the Comment Letters received from various agencies and public, showing in the left side, and on the right side are the responses to the comments.





United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
Pacific Southwest Region  
333 Bush Street, Suite 515  
San Francisco, CA 94104

IN REPLY REFER  
(ER 14/0488)

*Filed Electronically*

29 September 2014

Ms. Meris Bantilan-Smith  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

Subject: Review of the Draft Environmental Impact Statement (DEIS) for the San Elijo Lagoon  
Restoration Project, CA

Dear Ms. Bantilan-Smith:

Thank you for the opportunity to comment on the Review of the Draft Environmental Impact Statement (DEIS) for the San Elijo Lagoon Restoration Project, CA. We have the following comments to assist your preparation of the Final EIS.

A-1

The goal of the San Elijo Lagoon Restoration Project (SELRP or project) is to restore lagoon functions and services to the extent practicable given the constraints of surrounding development. The SELRP has two components: the restoration of the 960-acre San Elijo Lagoon and the disposal or reuse of materials excavated as part of the restoration. The SELRP would reconfigure lagoon elevations via grading/dredging and modify water flow into the lagoon via changes to the ocean inlet and lagoon channels. Elevations would be created to allow for appropriate inundation frequencies that would support specific habitat types. A range of alternatives are evaluated in the DEIS; however, the least damaging practicable alternative (LEDPA) has not been determined.

A-2

We appreciate the actions the San Elijo Lagoon Conservancy has undertaken to improve habitat and water quality in the San Elijo Lagoon Ecological Reserve, such as actively opening the mouth on at least an annual basis for more than 10 years and removal of invasive species and restoration of native habitats. The US Fish and Wildlife Service (Service) has been an active participant in the Stakeholders Group for this project; these comments are offered to assist the U.S. Army Corps of Engineers (Corps) in avoiding, minimizing, and providing adequate conservation to offset project-related impacts to fish and wildlife resources. We are available to work with the Corps to identify the LEDPA.

A-3

Although we are very supportive of the goals of the SELRP, based on our review of the DEIS, we are concerned with the impacts associated with construction of Alternatives 2A and 1B. Although these alternatives may result in the greatest benefits to water quality, they may be at the expense of other

**A-1**

The comment provides opening statements and summarizes the SELRP and EIR/EIS; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**A-2**

The involvement of USFWS in the project is acknowledged. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**A-3**

The comment states that Alternatives 2A and 1B do not represent the Least Environmentally Damaging Practicable Alternative (LEDPA) as currently designed. Under the CWA Section 404(b)(1) guidelines, the Corps must consider a number of factors when making its permit decisions, including whether there are practicable alternatives to the proposed discharge. The Corps is prohibited from issuing a permit for the discharge of dredged or fill material into navigable waters if "there is a practicable alternative to the proposed discharge which would have a 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)). An alternative is "practicable" if "it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes" (40 C.F.R. 230.10(a)(2)). The Draft EIR/EIS did not identify the LEDPA. The preliminary LEDPA is identified as Alternative 1B – Refined in the Draft 404(b)(1) Alternatives Analysis, included in this Final EIR/EIS as Appendix O. The final LEDPA will be identified in the Final 404(b)(1) Alternatives Analysis and identified in the Record of Decision issued by the Corps.

- A-3 cont. resources (e.g., temporal loss of habitats). As such, these alternatives do not represent the LEDPA as currently designed.
- A-4 Both Alternatives 2A and 1B will impact 32 percent of existing habitats from dredging, grading, and inundation (Tables 3.6-5 and 3.6-9). Alternative 2A will impact approximately 95 percent of the low marsh, 84 percent of the mid marsh, and 91 percent of mudflats either directly from dredging/grading or temporarily from inundation during construction. Similarly, Alternative 1B will impact approximately 92 percent of the low marsh, 85 percent of the mid marsh, and 91 percent of the mudflats. We concur with the conclusions that these impacts should be considered significant and adverse.
- A-5 The DEIS indicates that the restored habitat will be fully functioning within 5 to 10 years. A study of 621 wetland sites around the world found that biological structure (driven mostly by plant communities) and biogeochemical functioning (driven primarily by the storage of carbon in wetland soils) remained on average 26 percent and 23 percent lower in restored or created wetlands, respectively, than in reference wetlands even a century after restoration (Moreno-Mateos et al. 2012).
- A-6 More definitive information to support the timeframe to achieve a fully functioning restoration project should be provided for review and considered in the determination of the LEDPA. In addition, the consequences of disrupting the biogeochemical function of the existing wetlands should be examined, including the release of carbon and its contributions to global climate change.
- A-7 Within the Southern California Bight from 1850 to 2005, an increase in subtidal habitat from 6,914 hectares to 7,253 hectares and a decrease in coastal salt marsh from 7,764 hectares to 1,945 hectares was documented (Stein et al. 2014). Loss of coastal salt marsh has led to the decline of marsh dependent birds, such as the federally and State-listed endangered light-footed clapper rail (*Rallus obsoletus* [*longirostris*] *levipes*)<sup>1</sup> and State-listed endangered Belding's savannah sparrow (*Passerculus sandwichensis*). Implementation of Alternative 2A would result in further losses of coastal salt marsh in exchange for subtidal habitat and slow recovery efforts for these species.
- For this reason, we do not support Alternative 2A as the LEDPA.
- A-8 With regard to Alternative 1B, we recommend impacts to extant habitat be reduced in the Central Basin through modifications to the design and construction methods. Specifically, we recommend that alternatives to disposal of the fines be considered because many of the impacts from construction are associated with the over dredge pit in the Central Basin. In addition, the grading and dredging within the south Central Basin could be minimized further (i.e., more focused within the existing and proposed tidal channels) to reduce impacts to existing coastal salt marsh and mudflat habitat. These changes would also reduce the release of carbon sequestered in the soil and plants and reduce re-suspension of sediment contaminated with DDT and DDE. With these changes, we could support Alternative 1B.
- A-9
- A-10
- A-11 We support Alternative 1A because it will result in more coastal salt marsh compared to the other alternatives, thereby supporting recovery of marsh dependent birds and conservation of a habitat type that has regionally declined. Implementation of Alternative 1A would essentially retain existing habitat. Large areas in the Central Basin that contain mudflat and low and mid-marsh habitat would not be impacted to create an over dredge pit or to create other habitats.
- A-12 Optimizations to Alternative 1A may make it capable of further meeting the goals and objectives of the project in terms of conveying fluvial flows through the lagoon. For example, the footprint of Alternative

<sup>1</sup> Please note that the American Ornithologists' Union now recognizes the rail as the light-footed Ridgway's rail (*Rallus obsoletus* *levipes*) (Chesser et al. 2014).

#### A-4

The comment summarizes biological impacts identified for Alternatives 2A and 1B and concurs with the EIR/EIS conclusions that impacts are significant and adverse.

#### A-5

The referenced study compares restored or created wetlands to predominantly undisturbed wetlands, rather than to the pre-restoration condition at each site; therefore, these statistics are not directly applicable to SELRP. References in the EIR/EIS to improved function do not compare wetland function to that of another system, but to the current, pre-restoration condition of San Elijo Lagoon, which is already in a degraded state. Thus, the improvements described in the EIR/EIS are holistic improvements to the function of the existing San Elijo Lagoon system specifically, not improvements relative to other undisturbed systems. Within 5 to 10 years, the project team anticipates that ecological function would recover substantially from project-related impacts and, in some areas, improve over existing conditions. The project increases biogeochemical function on-site by increasing tidal flushing, removing former sludge-affected soils, and restoring optimum ground elevations to enable habitat establishment processes to occur. Ecological function of the habitats at San Elijo Lagoon will be measured both qualitatively and quantitatively and may include measurements of vegetation cover and diversity, use of the site by sensitive species, invertebrate monitoring/measurement, etc. Similar projects in the region, such as Batiquitos Lagoon, San Dieguito Lagoon, Huntington Beach Wetlands, Bolsa Chica, Anaheim Bay Wetlands, and others, show habitat establishment within 10 years, and some within 5 years (Merkel 2009). It is therefore anticipated that San Elijo Lagoon should experience similar wetland habitat function within 10 years. The post-implementation maintenance and monitoring would occur over a minimum of 5 years or until success standards are met. The exact success standards will be dictated by permit conditions and are outlined in the conceptual restoration plan, attached as Appendix Q to this EIR/EIS. Success standards would include, but are not limited to, requirements for native and nonnative vegetation cover, hydrology indicators, species diversity, and documentation of sensitive wildlife species recovery.

#### A-6

Disturbance of soils, water, biota, and air would occur with the SELRP. The SELRP would remove high-nutrient sediments with high organic carbon content, and would generally result in a smaller carbon footprint, because that organic carbon would be placed intact in the over dredge pit or LA-5 and not released into the atmosphere. Some release of porewater CO<sub>2</sub> and perhaps CH<sub>4</sub> (the latter in brackish and freshwater areas) would occur during dredging, but that would occur with any wetland disturbance (natural or artificial).

#### A-7

See Response to Comment A-3. Consideration of the balance of habitats for sensitive species was one of the factors considered when determining the preliminary LEDPA. Alternative 1B – Refined has been selected as the preliminary LEDPA for a variety of reasons, including, but not limited to, its benefits to light-footed Ridgway's rail. Alternative 2A has not been identified as the LEDPA.

#### A-8

Refinements to Alternative 1B have been incorporated into the project, as described in the Preface to the Final EIR/EIS. Alternative 1B – Refined would reduce impacts to existing habitat in each of the

lagoon basins, while achieving the other goals of the project, including water quality objectives. Some dredging/grading within the basin is still proposed, however, in order to achieve water quality improvements due to eutrophication in the lagoon. The nutrient-rich sediment removal proposed would also allow the creation of an overdredge pit within portions of the central basin identified for dredging. The overdredge footprint has also been reduced as a result of these refinements and the incorporation of steeper side slopes. Creation of the pit would generate material suitable for placement in the littoral cell, in accordance with CCC and SANDAG policies.

**A-9**

See Response to Comment A-8. Grading/dredging in the southern portion of the central basin has been modified and reduced as part of Alternative 1B – Refined. A key component of grading within the central basin is improving water quality within the lagoon. San Elijo Lagoon is not only currently converting rapidly with respect to habitat distributions, it is also a 303(d) listed waterbody for various water quality parameters, including eutrophic conditions, bacteria, and sedimentation. Proposed dredging of sediments within lagoon basins is not only designed to lower elevations to certain habitat elevation ranges and slow or halt ongoing conversion, it also is designed to address the water quality issues that have resulted in the 303(d) listing. A large factor in the existing water quality issues is related to sediments that have historically accumulated nutrient levels that cause eutrophication within the lagoon, and removal of those sediments is critical to the SELRP. This water quality objective has been clarified in Chapter 1 of the EIR/EIS. Text has been added to Chapters 1 and 2 as appropriate to emphasize existing water quality issues within the lagoon and the necessary removal of high-nutrient sediments to improve water quality.

**A-10**

See Responses to Comments A-6 and A-9. Reducing surface soil disturbance would reduce carbon release. Release of contaminants would not occur because soils in the southern central basin are not contaminated. Certain chemicals exist in various channel areas, but levels are below thresholds of concern for EPA, as determined in a Sampling and Analysis Plan implemented in concurrence with EPA staff and discussed in the EIR/EIS (Appendix A). Changes suggested by the commenter have been considered in the design of Alternative 1B – Refined and efforts have been made to reduce impacts to existing habitats in the south central basin; however, to address water quality impairments and create a post-restoration habitat distribution that supports shorebirds and results in benefits to the lagoon as identified in the project objectives, some impact is necessary as part of the project.

**A-11**

The commenter's support for Alternative 1A is acknowledged.

**A-12**

Alternative 1B – Refined has been identified as the Preliminary LEDPA. The suggested modifications to Alternative 1A would enhance hydraulics within the lagoon; however, these modifications would continue to result in a project that would not achieve the project goals and objectives. Water quality, particularly with respect to eutrophication due to nutrient-rich soils, would not be addressed by an enhanced Alternative 1A, as suggested by the commenter. If Alternative 1A is ultimately identified as the final LEDPA, removal of the CDFW dike in the east basin could enhance fluvial flows through the lagoon. This type of refinement could occur, as suggested by the commenter, as long as potential

impacts associated with those refinements are within the parameters considered as part of the environmental analysis of the EIR/EIS for the project. Such refinements will be considered in the Final 404(b)(1) Alternatives Analysis and an evaluation of their practicability made prior to issuance of the ROD.

The existing analysis in the EIR/EIS, which addresses dike removal under Alternatives 2A and 1B, would be applicable to the suggested enhanced Alternative 1A. No additional impacts beyond those already identified would occur due to dike removal. General issue areas that may have slightly modified impacts as a result of an enhanced Alternative 1A are described below:

- Removal of the CDFW dike would enable the lagoon to drain incoming freshwater more efficiently, leading to less potential in general for flooding hazards during storm events.
- Hydrologic conditions associated with removal of constrictions within the lagoon restricting water flow and circulation would improve with the ability of the lagoon to drain freshwater currently impounded in the east basin and would improve tidal influence throughout the basins by allowing for saltwater input and freshwater output within the east basin.
- Upstream sediment may remain within the water column longer and would have less ability to settle out behind the dike as water would pass through the lagoon system more quickly.
- The Dike Trail would be permanently removed and access replaced by a pedestrian bridge under I-5, similar to Alternatives 1B and 2A.
- Additional construction activities and equipment would be temporarily visible during dike removal.

A-12 cont. 1A east of I-5 could be changed to include removal of the California Department of Fish and Wildlife (CDFW) dike/weir in the East Basin as proposed for Alternatives 1B and 2A. This change would allow for better conveyance of flood waters and reduce the need for maintenance of the culverts that would otherwise be placed under the existing CDFW dike/weir. The utility of the current trail at the CDFW dike/weir could be replaced with the trail proposed as part of the I-5 widening.

#### Specific Comments

A-13 Page ES-20 and 2-47. Tables ES-1 and 2-17 list the acreage of each habitat type, by alternative. Please clarify that these acreages represent "as built" and do not reflect potential impacts from sea level rise.

A-14 Page 2-95. To make the nest site to be created in the Central Basin more attractive to federally endangered California least terns (*Sterna [Sterna] antillarum brownii*), we recommend that it be capped with 2 feet of sand (with no more than 5 percent silt/clay) topped with crushed shell. (WRA Environmental Consultants 2009).

A-15 Page 3.1-3. We recommend that the project include closing redundant trails along the south side of the Central Basin to reduce fragmentation of habitat and minimize anthropogenic disturbances to sensitive fauna. In addition, new trails (e.g., the trail between the Nature Center and the railroad shown in Alternative 1B) should only be established in areas where demonstrated that they are a compatible use with the biological resources.

A-17 Page 3.6-2. This section should include a discussion of how coastal salt marsh vegetation benefits from periodic pulses of freshwater associated with fluvial processes and rainfall. These pulses of freshwater may be critical for cordgrass to achieve the necessary height to support the light-footed clapper rail and for the germination of annual salt marsh species.

A-18 Page 3.6-69. We disagree with the conclusion that the current and potential future low-marsh habitat occupied by the light-footed clapper rail is in overall poor condition in the absence of restoration. The San Elijo Lagoon currently supports a healthy population of rails. Under the No Project Alternative, an increase in breeding habitat (i.e., cordgrass) for the rails is expected, and while some loss of mudflats will occur, data is lacking to suggest that loss of mudflat habitat is a limiting factor for the rail.

A-19 Page 3.6-118. We disagree with the conclusion that, under the No Project Alternative, habitat conversion is expected to trend towards a more monotypic system. As reflected in Table 2-17, all four of the alternatives, including the No Project Alternative, will continue to support the same suite of habitat types.

A-20 Page 3.16-13. We recommend including a table, similar to Tables ES-1 and 2-17, that lists the predicted habitat acreages based on the climate change models.

A-21 References Cited  
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WRA Environmental Consultants. (2009). Technical Memorandum Nesting Site Comparison Study. Prepared for SCE-San Dieguito Wetlands Restoration Project.

#### A-13

It is correct that the habitat distribution acreages provided in tables ES-1 and 2-17 of the EIR/EIS represent the proposed post-project condition that would result from the implementation of each individual alternative; thus, sea level rise is not a factor in the acreage distribution. Information has been added to the EIR/EIS that clarifies the predicted habitat distribution.

#### A-14

Additional discussion has been added to Section 2.4.1 to incorporate this design recommendation.

#### A-15

The recommendation to close redundant trails is noted. However, the SELRP does not propose to close or eliminate any established trails that are not directly impacted by the project. Objective 4 of the SELRP, as stated in Chapter 1 of the EIR/EIS, is the maintenance of recreational and educational opportunities. Established trails, including those along the south side of the central basin, have been incorporated into development of the proposed habitat distribution to the extent feasible, and closure of these trails would not reduce identified impacts associated with project implementation of the SELRP. The project proponent has balanced biological and recreational objectives in the selection of the trail location between the railroad and the Nature Center. Additional language has been added to Section 2.10.1 describing proposed trail characteristics, which would include a four- to six-foot wide trail with decomposed granite (2-3" deep) matching adjacent grade over geotextile and compacted subgrade. In areas where railing may be required, a split 3-rail fence would be installed using native, rot-resistant wood or plastic lumber (not wood treated with rot resistant chemicals).

#### A-16

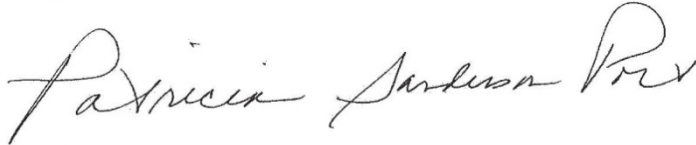
A new connector trail would be included in Alternative 1B that would traverse lagoon habitat, as identified by the commenter. Under all build alternatives, a short new trail segment would be installed to connect trails along Manchester Avenue to the north-south trails system parallel to I-5 (and proposed improvements by Caltrans). Trail alignment would be located at higher elevation than surrounding wetlands along a designated fill location, and has been identified to maintain an appropriate interface with the surrounding biological resources.

#### A-17

The relationship between freshwater inflows and salt marsh dynamics is complex and not well understood. Additional text has been added to Section 3.6 to clarify what is known about southern California salt marsh response to freshwater inflows and the effects of the SELRP alternatives on salt marsh. Timing and duration of freshwater inflows can result in a broad range of effects that correlate with the degree of change in soil salinity. Certain salt marsh species appear to require periods of reduced soil salinity for seed germination, although continuous freshwater inflows to salt marsh may result in a shift from salt marsh to freshwater marsh. Thus, the timing of freshwater inflows, the amount of freshwater, and the duration play an important part in the response of the normally hypersaline salt marsh. Improvement of the hydraulic efficiency of the lagoon through widening and creation of new channels proposed under the SELRP restoration alternatives would allow for periodic, short-term freshwater pulses while managing potentially damaging long-term salinity reduction.

A-21  
cont.

We appreciate the opportunity to comment on the DEIS. If you have any questions regarding this letter, please contact Carolyn Lieberman or Susan Wynn of the Carlsbad Fish and Wildlife Office at 760-431-9440.  
Sincerely,



Patricia Sanderson Port  
Regional Environmental Officer

cc: OEPC Staff Contact: Loretta B. Sutton, (202) 208-7565

Carolyn Lieberman, U.S. Fish and Wildlife Service, Pacific Southwest Region, Carlsbad, CA 92011  
Susan Wynn, U.S. Fish and Wildlife Service, Pacific Southwest Region, Carlsbad, CA 92011  
Gabriel Buhr, California Coastal Commission, San Diego, CA 92108  
Bryant Chesney, National Marine Fisheries Service, Long Beach, CA 90802  
Tim Dillingham, California Department of Fish and Game, San Diego, CA 92123  
Susan Sturges, U.S. Environmental Protection Agency, San Francisco, CA 94105  
Elizabeth White, U.S. Environmental Protection Agency, San Francisco, CA 94105  
Bruce Posthumous, Regional Water Quality Control Board, San Diego, CA 92124  
Megan Cooper, California Coastal Conservancy, Oakland, CA 94612  
Diane Elam, U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, CA 95825

#### A-18

The reference to poor condition of the low marsh habitat has been revised to clarify that the low marsh habitat currently within the lagoon is of high biological value. The conclusion was intended to reflect that post-restoration, the condition of the habitat is expected to be higher based on better water quality and improved tidal flushing. San Elijo Lagoon does currently support a large population of rails. However, as noted in Section 3.6.1, the majority of the rails have historically been observed in the brackish marsh habitat in the east basin. The conclusion on page 3-69 of the Draft EIR/EIS does not say that mudflat habitat is a limiting factor. As noted by the commenter, literature is lacking in this regard. While mudflats may not be a limiting factor, they are important foraging habitat for light-footed Ridgway's rail. The SELRP, and in particular the preliminary identified LEDPA, Alternative 1B – Refined, reflects an attempt to balance foraging and nesting opportunities for species, including the light-footed Ridgway's rail.

#### A-19

Without the proposed restoration project, mudflats would be diminished, affecting the balance of suitable foraging and nesting habitats to enhance and restore wetland functions and services at the lagoon level rather than being focused on specific habitat types. Specific goals and objectives focus not only on biological goals, such as providing a balanced habitat distribution of both vegetated and unvegetated intertidal habitat types, but also physical and management goals and objectives. San Elijo Lagoon is not only converting rapidly with respect to habitat distributions, it is also a 303(d) listed waterbody for various water quality parameters, including eutrophic conditions, bacteria, and sedimentation. Section 3.6 has been revised to clarify that the balance of habitats within the lagoon is shifting.

#### A-20

Tables P-7 and 3.16-8 have been added to the EIR/EIS to provide additional discussion of anticipated habitat distributions under the predicted sea level rise scenario, but this distribution accounts for only one variable in climate change and is relatively speculative.

#### A-21

The references cited in the comment letter are noted.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

OCT 10 2014

Meris Bantilan-Smith  
U.S. Army Corps of Engineers  
Los Angeles District  
Regulatory Division, Carlsbad Field Office  
5900 La Place Court, Suite 100  
Carlsbad, California 92008

Subject: Draft Environmental Impact Statement/Environmental Impact Report (EIS) for the  
San Elijo Lagoon Restoration Project, San Diego County, California [CEQ #20140209]

Dear Ms. Bantilan-Smith:

- B-1 The U.S. Environmental Protection Agency (EPA) has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) NEPA Implementation Regulations at 40 CFR 1500-1508, and our NEPA review authority under Section 309 of the Clean Air Act.
- B-2 We have rated this Draft EIS as EC-2 – Environmental Concerns - Insufficient Information (see enclosed "Summary of Rating Definitions and Follow-Up Action"). EPA supports the restoration of San Elijo Lagoon, and we will continue to coordinate with the Corps, as well as with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, on dredging and disposal/reuse planning for this project. We commend the project's recognition of, and design in response to, anticipated future sea level rise induced by climate change. This approach promotes the long-term efficiency, efficacy, and relevance of the project. We believe, however, that additional measures to improve the project exist, and recommend that the Final EIS provide additional information to clarify uncertainties raised in the Draft EIS, including sediment dredging and disposal/reuse commitments, air quality impacts, and adaptive management and mitigation measures. Our detailed comments are enclosed.
- B-3
- B-4
- B-5 We appreciate the opportunity to review this Draft EIS. Please send a copy of the Final EIS to this office (mailcode ENF-4-2) when it is officially filed with EPA's *e-NEPA*. If you have questions, please call me at (415) 972-3521 or contact Jeanne Geselbracht at 415-972-3853.

Sincerely,

Kathleen Martyn Goforth, Manager  
Environmental Review Section

Enclosures: EPA's Summary of Rating Definitions  
EPA's Detailed Comments

**B-1**

The comment provides introductory statements and specifies the EPA review pursuant to NEPA; it does not raise a specific issue related to the adequacy of the EIS. Therefore, no specific response is provided. EPA is included in the listing of responsible and trustee agencies in Section 1.3 of the EIS.

**B-2**

EPA's rating of the Draft EIS as EC-2 is acknowledged.

**B-3**

The comment states general support of the lagoon restoration and the need for continued coordination with involved agencies; this comment is acknowledged and included in the EIS for the decision makers to consider.

**B-4**

The comment notes concerns; it does not raise a specific issue related to the adequacy of the EIS. Therefore, no specific response is provided.

**B-5**

The comment provides closing statements.



cc: Megan Hamilton, County of San Diego Department of Parks and Recreation  
Robert Hoffman, National Marine Fisheries Service  
Scott Sobiech, U.S. Fish and Wildlife Service

US EPA DETAILED COMMENTS ON THE SAN ELIJO LAGOON RESTORATION PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT 10 OCTOBER, 2014

Sediment Dredging and Disposal/Reuse

The Draft EIS indicates that existing reuse sites in the project area have more capacity for sand than the project would generate. We believe that discharging dredged clean sand directly to the reuse areas would be more efficient and cost effective and less environmentally disruptive than stockpiling it offshore at SO-5 or SO-6 for future use.

**B-6** **Recommendation:** We recommend that all clean sand dredged for the project be directly reused for beach nourishment or other habitat or construction components of the overall restoration project, and that sand be placed in the offshore stockpile areas only if practicable reuse opportunities are unavailable at the time of construction. Include a specific commitment to this in the Final EIS.

**Recommendation:** In addition to the volumes proposed to be placed at each site, Table 2-20 (or a new table) should list the capacities associated with each placement site.

Similar to Alternative 2A, Alternative 1B would include the pre-filling of an offshore ebb bar at the Cardiff site. Unlike Alternative 2A, however, Alternative 1B would not involve relocating the lagoon inlet. The discussion in the Draft EIS (pp. 3.3-11 and 3.3-12) does not justify the need for pre-filling this ebb bar under Alternative 1B; therefore, the reason for constructing it in this location is unclear.

**B-7** **Recommendation:** Describe, in the Final EIS, the effects -- including costs and benefits -- of pre-filling an offshore ebb bar at the Cardiff site for Alternative 1B. If this ebb bar is deleted from Alternative 1B, the volumes of dredged sand to be discharged to the project's various nearshore and onshore sites should be recalculated and identified in the Final EIS, and the text and figures (e.g., Figures 2-11 and 2-11C) should be revised.

The Clean Water Act Section 404(b)(1) alternatives analysis for this project is not included in the Draft EIS, but will be helpful in determining the least environmentally damaging practicable alternative (LEDPA) and demonstrating project compliance with Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials ("Guidelines" at 40 CFR 230), promulgated pursuant to Section 404(b)(1) of the Clean Water Act. Page 29 of the Corps South Pacific Division (SPD) February 8, 2013 Regulatory Program Standard Operating Procedure for Preparing and Coordinating EISs (12509-SPD) states:

**B-8** Districts will make all reasonable efforts to ensure the NEPA alternatives analysis is thorough and robust enough to provide the information needed for the evaluation of alternatives under the section 404(b)(1) Guidelines and the public interest review. The goal of integrating the NEPA alternatives analysis and the CWA section 404(b)(1) alternatives analysis is to gain efficiencies, facilitate agency decision-making and avoid unnecessary duplication.

The practice of deferring, until later in the NEPA process, the disclosure of information needed for findings of compliance with the Guidelines makes it difficult for agencies and the public to provide timely and substantive input on the evaluation of alternatives, which could inform the Corps' decision-making process. Integrating the section 404(b)(1) alternatives analysis into the Draft EIS alternatives analysis would afford agencies and the public a more meaningful opportunity to evaluate impacts and provide relevant and timely feedback to inform these analyses and the Corps' decision.

**B-6**

The recommendation to prioritize placement of suitable material on beaches over offshore stockpile areas is acknowledged. Specific placement volumes for each site will be determined during the permitting and final design phase of the project through permit agency negotiation and once final export volumes are identified. The material placement capacities have been added to Table 2-21 as requested.

**B-7**

As noted by the commenter, Alternative 1B does not require an ebb bar off of Cardiff Beach, as Alternative 2A does. The purpose of placement material in the nearshore off Cardiff Beach for Alternative 1B is to provide a feeder sand bar for nourishment of the littoral zone as a beneficial material reuse action. No significant impacts or environmental "costs" would result from this action. The sand bar acts as a reservoir of sand for beach nourishment as the bar disperses slowly over time. In addition, as described under Alternative 2A, the feature can also serve as a recreational amenity by producing at least a moderate-quality wave, or an even better-quality wave than presently exists for its duration. Similar sand bars were installed off Bolsa Chica State Beach in 2005–2006 and off of Huntington State Beach in 2008–2009. Both amenities provided recreational surfing for months, and State Park authorities indicated that revenues at the park from increased attendees substantially increased. Additional discussion has been added to Chapter 2 of the Final EIR/EIS to clarify this purpose. Specific placement volumes for each site will be determined during the permitting and final design phase of the project through permit agency negotiation and once final export volumes are identified. The analysis in the EIR/EIS evaluated maximum volumes that could be placed at each site in order to provide a conservative analysis under CEQA and NEPA; volumes would be the same or less than those identified in the EIR/EIS and would be refined during the permitting process.

**B-8**

The Clean Water Act Section 404(b)(1) alternative analysis integrates the NEPA alternatives analysis presented in the Draft EIR/EIS and is included in this Final EIR/EIS in the Draft 404(b)(1) Alternatives Analysis attached as Appendix O. The preliminary LEDPA is identified in the Draft 404(b)(1) Alternatives Analysis, and the final LEDPA will be identified in the Record of Decision issued by the Corps.

B-8 cont.	<p><b>Recommendation:</b> Identify the LEDPA and include the Clean Water Act Section 404(b)(1) alternatives analysis in the Final EIS.</p>
B-9	<p>The Draft EIS acknowledges that all of the sediments proposed for beach or nearshore reuse or stockpiling must be determined suitable by EPA and the Corps prior to reuse or placement. The Draft EIS also acknowledges that additional sampling and testing would be needed, and suitability determinations must be made by EPA and the Corps, if any ocean disposal (i.e., at LA-5) is proposed. Please note that these Draft EIS comments do not constitute EPA's suitability determination for aquatic placement or disposal of any material from this project. We look forward to coordinating with the Corps as the project progresses, and to providing final suitability determinations once a final alternative has been selected.</p>
B-10	<p><u>Monitoring, Mitigation, and Adaptive Management</u></p> <p>The Draft EIS indicates that a construction monitoring plan for the pre-construction, construction, and post-construction phases would be developed when the Agency Preferred Alternative and the LEDPA are identified. It appears that a separate lagoon restoration plan specifying monitoring protocols, maintenance, and adaptive management measures would also be developed at that time. It is unclear why these plans would be separate, given that their time frames would overlap and construction monitoring data would inform trends, monitoring needs, and adaptive management options for the restoration phase. In addition, it is unclear why some monitoring elements in Table 2-26 of the Draft EIS would not be included in the post-construction phase (e.g., water quality and sensitive species). The elements to be monitored per Table 2-26 should all be monitored in the restoration phase; therefore, a comprehensive adaptive management plan (AMP) addressing monitoring, maintenance, and adaptive management for all project phases may be clearer and more efficient in its implementation.</p>
B-11	
B-12	<p><b>Recommendation:</b> In addition to identifying the Agency Preferred Alternative and LEDPA, we recommend that the Final EIS include a comprehensive AMP. The AMP should clearly articulate the project's management objectives and options for meeting these objectives. The objectives identified in the plan should be explicit and measurable, and the triggers, thresholds, and associated action commitments should be well defined. Identify any uncertainties in the San Elijo Lagoon hydrologic and ecological systems in order to develop appropriate monitoring to not only track anticipated responses to construction and maintenance, but also uncover unexpected results. The AMP should specify monitoring protocols and identify the sources of funding and the parties responsible for implementing and updating the plan.</p>
B-13	<p>The majority of the project design features (PDF) identified in Table 2-25 are to be implemented during construction; however, many of these would also be appropriate during maintenance operations. Such measures involve minimizing noise, air pollutant emissions, water pollutant discharges, hazardous material spills, impacts to wildlife and habitat, and ensuring public safety.</p> <p><b>Recommendation:</b> Apply appropriate PDFs in Table 2-25 to maintenance operations, in addition to project construction phases.</p>
B-14	<p>The Draft EIS (p. 2-122) indicates that non-native invasive plant species would be controlled by mechanical and chemical means, as appropriate. Nesting area management would also require weed control.</p> <p><b>Recommendation:</b> The Final EIS should identify the herbicides that could be used for the project, and the trigger(s) for, and potential impacts of, their use. Specify the precautions that would be taken to ensure against detrimental effects on non-targeted species, including special</p>

#### B-9

The comment is noted. Coordination with EPA will continue as necessary regarding sediment suitability determinations for placement or disposal of materials generated as part of the SELRP.

#### B-10

It is anticipated that a comprehensive monitoring, maintenance, and adaptive management plan would be developed for the project; there would be three primary components of the program: construction monitoring, restoration monitoring, and maintenance/adaptive management. Information has been added to Section 2.11 of the EIR/EIS to clarify the anticipated format of the plan and a conceptual restoration plan is attached as Appendix Q of this EIR/EIS.

#### B-11

Section 2.11 acknowledges that specific components of the plan identified in the EIR/EIS are preliminary and limited to known or anticipated monitoring components. Program components are identified in the conceptual restoration plan, attached as Appendix Q to this EIR/EIS. Components identified in this plan will be refined through the permitting and approval process once the LEDPA has been confirmed and the EIR/EIS has been certified. Depending on agency and permit conditions, monitoring in addition of that identified in the document could be implemented.

#### B-12

As noted in Responses to Comments B-10 and B-11, a comprehensive monitoring, maintenance, and adaptive management program will be developed for the project and a conceptual restoration plan is attached as Appendix Q. The plans will be finalized in conjunction with the permitting and approval process for the project in order to incorporate agency and permit conditions. Due to these timing constraints, final plans will not be completed prior to issuance of the Final EIR/EIS, but will be completed prior to project implementation.

#### B-13

Some of the project design features related to construction operations would also be applicable during similar maintenance operations. The Timing column of Table 2-26 has been modified where appropriate to include maintenance activities. As noted in Response to Comment B-11, additional monitoring needs may be identified as part of permit decisions and the agency coordination process.

#### B-14

Where practicable, invasive species will be removed by hand or hand tools rather than chemical means. When necessary, herbicide application will be conducted by personnel with a California Department of Pesticide Qualified Applicators Certificate (QAC) or by personnel under the supervision of a person with a California Department of Pesticide Qualified Applicators License (QAL). All herbicide applied will be consistent with the label, as well as state and local regulations. Any herbicide used will be approved for use in an aquatic environment (i.e., AquaNeat®) as the entire restoration area is within the confines of the lagoon. Herbicide application will be conducted using backpack sprayers and will consist of spot spraying nonnative plant species. Herbicide application will be conducted using methods that limit overspray to adjacent native plant species and will be discontinued when wind speeds are higher than the designated label standard or above 10 miles per hour. These conditions are included in the document as PDF-24.

B-14 ↑

status species. EPA recommends that herbicides be used only in the context of an integrated pest management program that prioritizes non-chemical and least toxic pest management methods.

B-15

Air Quality

The Draft EIS provides construction and operational emissions estimates in pounds per day and tons per year for purposes of comparing them with significance thresholds, including general conformity *de minimis* thresholds. Contaminant emissions have not been modeled, however, to show their estimated concentrations under each alternative in the project area.

**Recommendation:** Conduct dispersion modeling to determine air pollutant concentrations of criteria pollutants from direct, indirect, and cumulative emissions under each alternative for an accurate comparison with the National Ambient Air Quality Standards. This information should be included in the Final EIS.

**B-15**

The comment indicates that dispersion modeling should be conducted to determine air pollutant concentrations anticipated for the SELRP. As discussed in Section 3.11 of the EIR/EIS, construction would result in exhaust emissions associated with construction equipment, worker vehicle trips, dredge, and tugboat operation. The primary on-site source of exhaust emissions from the project would be diesel-fueled engines required for vegetation clearing and dredging. Other construction-related sources of diesel exhaust are delivery trucks and tugboats used for material disposal and/or placement. Most exhaust emissions associated with material delivery trucks and tugboats would occur off-site. Because the use of diesel equipment would be temporary during the construction period and equipment would operate at varying distances from receptors, dispersion modeling would not be anticipated to indicate that the project would generate substantial pollutant concentrations.

Further, the EIR/EIS conducted a General Conformity Applicability Analysis for criteria air pollutants. Based on the conformity analysis, criteria air pollutants were estimated to be below the *de minimis* levels. As such, the project would be in compliance with NEPA requirements and would not exceed the NAAQS. Thus, no additional modeling would be required to address compliance with the NAAQS or the federal Clean Air Act.

No adverse impacts were identified for project air emissions under NEPA, but significant impacts under CEQA were identified; therefore, mitigation measures AQ-1 through AQ-5 have been identified to address potential violations of air quality standards as a result of construction-related activities. As discussed in the EIR/EIS, reactive organic gas (ROG) and nitrogen oxide (NOx) emissions associated with the SELRP alternatives would exceed the San Diego County thresholds of significance, and construction activities could lead to a violation of an applicable air quality standard, despite the incorporation of project design features. However, proposed mitigation would result in reductions in exhaust emissions of NOx and ROG as well as diesel particulate matter (i.e., PM<sub>10</sub>), which is the primary concern regarding health risk exposure. Although emissions of NOx and ROG would remain above applicable CEQA thresholds, as indicated in the EIR/EIS nonmitigated and subsequently mitigated project-related emissions of PM<sub>10</sub> would be below applicable NEPA (i.e., *de minimis* levels) and CEQA (i.e., SDAPCD thresholds of significance).

All feasible mitigation has been proposed and therefore no additional mitigation would be recommended. In addition, as indicated previously, estimated levels of PM<sub>10</sub> would be below applicable recommended thresholds, construction duration would be temporary (i.e., 3 years), and activities that generate PM<sub>10</sub> would be highly variable in duration throughout the overall construction period. Thus, exposure to nearby sensitive receptors would be minimal. Therefore, the use of dispersion modeling would not be anticipated to result in impacts that were not identified in the EIR/EIS. Dispersion modeling is not recommended for the EIR/EIS and all NEPA and CEQA requirements have been addressed in the analysis.

## CALIFORNIA COASTAL COMMISSION

SAN DIEGO AREA  
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September 29, 2014

Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

Meris Bantilan-Smith  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

Subject: Comments on the Draft EIR/EIS for the San Elijo Lagoon Restoration Project

Dear Ms. Hamilton and Ms. Bantilan-Smith,

C-1

Commission staff appreciates the opportunity to review and provide comment on the above-referenced environmental document which was received by our San Diego District Office on August 4, 2014. We offer the following initial comments regarding the draft Environmental Impact Report/Environmental Impact Study (EIR/EIS), dated July 2014, for the proposed San Elijo Lagoon Restoration Project (SELRP). The policies of the Coastal Act should be incorporated into the environmental review of any development that would either directly or indirectly affect the resources of the California Coastal Zone. Additional and more thorough project review will be provided as part of ongoing environmental review and the future Coastal Development Permit (CDP) process.

C-2

The proposed project is located in the southernmost portion of the City of Encinitas and within San Elijo Lagoon, a coastal wetland formed where Escondido and La Orilla creeks meet the Pacific Ocean. The project site is in an area of the Commission's retained jurisdiction and will require a CDP from the Coastal Commission. The subject restoration site is also identified as a specific project within the Restoration and Enhancement Mitigation Program (REMP) of the North Coast Corridor Public Works Plan/Transportation and Resource Enhancement Program (NCC PWP/TREP) that was approved by the Commission in August 2014. As a result, the proposed project must also be designed to be consistent with the parameters identified in the REMP in order to ensure consistency with this larger NCC program.

C-3

C-4

The project as proposed consists of two primary components: the restoration of approximately 960 acres of San Elijo Lagoon and the disposal or reuse of materials excavated as part of the restoration. The SELRP would reconfigure lagoon elevations via grading/dredging and modify water flow into the lagoon through changes to the existing

**C-1**

The comment provides introductory statements. The policies of the California Coastal Act are incorporated as appropriate throughout the analysis in the EIR/EIS, most specifically in Section 1.5 Regulatory Overview, Compliance with Applicable Statutes, and Permit Requirements, and in Section 3.1 Land Use/Recreation.

**C-2**

The project's location within an area of the Coastal Commission's retained jurisdiction is acknowledged and the requirement for the project to obtain a Coastal Development Permit is included in Table 1-3 of the EIR/EIS.

**C-3**

Inclusion of the SELRP as part of the North Coast Corridor Project Public Works Plan/Transportation and Resource Enhancement Program (PWP/TREP) is documented in Section 1.5 of the EIR/EIS. Additional information has been added to the EIR/EIS that clarifies the project's consistency with the North Coast Corridor Project Restoration and Enhancement Mitigation Program (REMP).

**C-4**

The comment includes a summary of the SELRP; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore no specific response is provided.

C-4 cont.	<p>ocean inlet and lagoon channels. Elevations would be created to allow for appropriate inundation frequencies that would support a mix of native coastal habitat types to include mid- to high-saltmarsh, low-saltmarsh, intertidal mudflats, subtidal, and transitional habitats.</p> <p>The presented purpose of the SELRP is to enhance and restore the physical and biological functions and services of the San Elijo Lagoon by increasing the tidal prism to support a diverse range of native intertidal and transitional habitats. The project objectives include the following: physical restoration of lagoon estuarine hydrologic functions; biological restoration of habitat and species within the lagoon; management and maintenance to ensure long-term viability of the restoration efforts; and maintenance of recreational and educational opportunities.</p>
C-5	<p>According to the Draft EIR/EIS, both Alternative 2A and 1B would impact 32% of existing habitats from dredging, grading, and inundation. More specifically, Alternative 2A would impact significant acreage amounts of various lagoon habitat types including approximately 95% of the low-marsh, 84% of the mid-marsh, and 91% of the mudflats either directly from dredging/grading or temporarily from inundation during construction. Similarly, Alternative 1B would impact approximately 92% of the low-marsh, 85% of the mid-marsh, and 91% of the mid-marsh. These impacts should be avoided and minimized through project design and construction methodology to the greatest extent feasible. Any impacts to existing wetlands need to be carefully calculated and analyzed in order to determine appropriate remediation and/or required mitigation. Proposed mitigation locations and ratios for anticipated impacts will be more specifically reviewed as part of any future CDP application.</p>
C-6	<p>The SELRP also proposes the conversion of existing wetlands to upland transitional habitats. The project should be revised to avoid this conversion or should include detailed justification as to how this conversion of wetlands is appropriate. As mentioned previously, any impacts to existing wetlands will require mitigation. The over dredge pit associated with Alternatives 2A and 1B should also be examined to determine if a smaller over dredge pit would suffice to minimize associated impacts.</p>
C-7	
C-8	<p>Restoration of the lagoon has the potential to generate more than one million cubic yards of excess material through dredging operations. Various options are available for disposal or reuse of that material (e.g., offshore ocean and or upland placement or disposal, placement on the beach or nearshore, and reuse on-site), depending on the characteristics. The Commission encourages the placement of sand on beaches, assuming it is suitable and compatible with the sand at the disposal site, as it provides a low-cost public access and recreational amenity on the coast; however, the project proponents should coordinate closely with the local entities and U.S. Army Corps of Engineers to avoid adverse impacts associated with multiple, long-term beach nourishment projects. Although many of the proposed materials placement sites have been identified based on previously authorized projects (2001 and 2012 RBSPs), given the potential for adverse impacts associated with the placement of sand in proximity to sensitive coastal resources (e.g., near-shore reef systems, marine protected areas, surf</p>
C-9 C-10	

## C-5

The project purpose is to enhance and restore the physical and biological functions and services of San Elijo Lagoon, as stated in Section 1.2 of the EIR/EIS. Restoration of the lagoon as an ecosystem is focused on establishing a habitat distribution that serves the lagoon most effectively, and acknowledges that specific habitat impacts may occur during enhancement, but the end goal of enhancing the functions and services of the lagoon is prioritized. Specific impacts to wetlands are discussed in Section 3.6 and the Preface. In Alternative 1B – Refined, as discussed in the Preface to the Final EIR/EIS, impacts to existing sensitive habitats and jurisdictional wetlands have been minimized to the extent practicable while still achieving the biological and physical (e.g., water quality and hydraulic) goals of the project. The EIR/EIS identifies mitigation for significant and adverse impacts under CEQA and NEPA.

## C-6

Transitional areas have been included in the project alternatives to enhance the resiliency of the lagoon to sea level rise, resulting in the conversion of some current jurisdictional areas, as noted by the commenter. These areas would then become available to transition back to jurisdictional wetlands as sea level rise occurs, enhancing the ability of the lagoon to meet the project biological objective of providing a gradient of habitats that considers sea level rise. Areas identified for transitional habitat have been reduced in Alternative 1B – Refined, as discussed in the Preface, to reduce impacts to existing wetlands. As detailed in Section 3.6 of the EIR/EIS, small decreases in overall current jurisdictional wetland acreage under each alternative are anticipated to be more than offset by improvement to future wetland conditions and functions. See Response to Comment C-7.

## C-7

The over dredge pit has been refined, as discussed in Response to Comment A-8. See also Response to Comment A-9.

## C-8

The Coastal Commission's support for placement of suitable material on beaches is noted.

## C-9

The SELRP has ongoing coordination efforts with other local agencies regarding various beach nourishment projects, including the Corps as the NEPA lead agency for this EIR/EIS. As discussed in Section 5.2 Projects Considered in the Cumulative Analysis, and shown in Table 5-1, beach nourishment projects along the San Diego coastline were included and considered in the cumulative impact analysis.

## C-10

The EIR/EIS identifies project design features (such as PDF-51 through PDF-68) to minimize effects to resources during materials placement, and the project would use sites previously authorized for placement. Additional conditions such as the long-term monitoring suggested by the commenter could be identified through discussions with the agencies during permitting.

C-10  
cont.

C-11

breaks), long-term monitoring would be required. Furthermore, consideration will need to be taken regarding the timing of these proposed sand placement activities in order to avoid or minimize impacts to coastal resources and recreation.

C-12

C-13

C-14

C-15

C-16

There is some concern that the large volume of sand (300,000 cubic yards every 3-4 years) associated with maintenance of the relocated inlet proposed as a part of Alternative 2A would result in long-term impacts to public access and recreation, as well as increased air quality impacts from operational maintenance activities. In addition, the proposed cobble blocking features associated with Alternative 2A would result in significant unavoidable impacts to visual resources, public access and recreation, natural shoreline processes (i.e., increased volume of sand entrainment from littoral cell into lagoon), and should be avoided. Furthermore, the proposed armoring of the existing inlet channel associated with Alternatives 1B and 1A should be minimized to the greatest extent feasible, including the avoidance of riprap extending under bridges proposed to be replaced, and around the base of new bridge columns; also, a "living shoreline" alternative near the lagoon inlet should be considered.

C-17

C-18

C-19

The Draft EIR/EIS indicates that post-construction monitoring is proposed to continue annually for a minimum of five years after construction; however, for a project of this size and scope, a minimum of ten years of post-construction monitoring is appropriate, with additional years of monitoring, if necessary, to meet project success criteria. During the development of performance standards for the SELRP, the REMP should be consulted in the determination of baseline performance standards. Any future CDP submittal for the subject restoration plan should include a fully developed monitoring plan and also identify that a sufficient endowment has been established in order to fund ongoing maintenance and monitoring activities.

C-20

C-21

C-22

There are also public recreational opportunities within the San Elijo Lagoon Ecological Reserve (Reserve), including more than seven miles of hiking trails. Alternative access to the Reserve's trail system should be maintained during construction of the project. In addition, the existing trail commencing at North Rios Avenue and traveling southwest toward and along the rail corridor, connects with an informal trail that the public currently uses to cross the railroad to access the beach from the lagoon and vice versa. As part of any future improvements to the rail corridor and/or trail in this location, a new rail undercrossing and trail extension should be considered to protect public safety and enhance east-west connectivity from the lagoon to the beach for public access and recreation. Finally, as part of the NCC PWP/TREP, a trail extending from the San Elijo Multi-Use Facility to the Reserve's Nature Center was approved; thus, the figures depicting the trail system should be updated to include this additional trail segment.

C-23

Design recommendations from the San Diego Association of Governments (SANDAG) Sea Level Rise Study (SANDAG 2013) are proposed to be incorporated into pile foundation and abutment protection engineering for bridgework; however, the Coastal Commission's Sea-Level Rise Policy Guidance document that provides an overview of best available science on sea-level rise for California and recommended steps for addressing sea-level rise in Coastal Commission planning and regulatory actions should

## C-11

See Response to Comment C-10. Table 2-26 identifies project design features to minimize effects of sand placement to coastal resources and recreation, including timing restrictions. Additional or more specific coordination for sand placement during the permitting process could result in the identification of additional restrictions that would be incorporated into the final project prior to implementation.

## C-12

The comment does not make clear the specific concern associated with the effect of Alternative 2A maintenance on public access and recreation. The EIR/EIS states in Section 3.1 Land Use/Recreation, that maintenance dredging activities may result in closure of a short reach of beach (500 feet) over a period of 5 months every 3 to 4 years for sand placement, but adjacent beach areas would remain open. Beach staging areas associated with maintenance activities would not impede the use of surrounding beach areas, would not be of the magnitude to cause a shortage of available beach area for recreationalists, and would be restored to their previous beach condition at the conclusion of the periodic maintenance work. Therefore, maintenance associated with Alternative 2A was found to have a less than significant impact related to access and recreational opportunities, as described in Section 3.1.3.

## C-13

Air quality emissions for the maintenance associated with all alternatives, including Alternative 2A, are quantified in Section 3.11 of the EIR/EIS. Tables 3.11-7 and 3.11-8 show the estimated emission for operational and maintenance activities for Alternative 2A and air quality impacts for these ongoing activities were found to be significant under CEQA. Emissions associated with the other alternatives were not found to be significant.

## C-14

The comment that the CBFs proposed under Alternative 2A should be avoided is noted. As stated in the comment, the EIR/EIS identified significant impacts associated with the CBFs specific to visual resources and public safety, as discussed in Sections 3.9 and 3.15, respectively. However, analysis did not find significant impacts related to coastal processes due to the installation of CBFs, as discussed in Section 3.3.

## C-15

Armoring of channel banks and under bridges has been considered and proposed with the "minimalist" approach to be as protective to habitat as possible, while still protecting critical slopes from erosion. For Alternatives 1A and 1B, areas of proposed armoring (in addition to existing armoring) lie along the west bank of the tidal inlet channel. This shore is important to protect because private property and Highway 101 lie along that shore, and that bank is already eroding. Protection is being proposed along the channel in order to prevent increases to existing erosion and threats to adjacent properties. In addition, new bridges at I-5 and the railroad are being designed by their owners and are addressed in other separate CEQA documents. The SELRP does not include those components and their impacts are not addressed in this project EIR/EIS. Armoring for Alternative 2A is also intended to be minimal, and just enough to protect a new bridge at Highway 101 if that alternative were to be implemented.



**C-16**

The SELRP is a lagoon restoration project, and materials placement is an approach that would allow the project to beneficially reuse material exported from the site consistent with SANDAG and CCC policies. A “living shoreline” project that would create dune habitat along the Cardiff back beach is beyond the scope of the SELRP but could be pursued as a separate project. If such a project was proposed, sand from the SELRP could be used to build proposed dunes. Under this scenario, if total volumes placed at the Cardiff site would be increased or the placement footprint shifted, additional CEQA and/or NEPA analysis would be required.

**C-17**

The request for 10-year post-construction monitoring is noted, and Section 2.11 has been revised to indicate the post-construction monitoring period would continue up to 10 years after completion of construction, until success criteria are met. See Response to Comment B-11.

**C-18**

Continued coordination will occur through the permitting process with the agencies involved in the North Coast Corridor project and associated requirements as they pertain to the SELRP and standards set by the REMP.

**C-19**

As part of the CDP application, the SELRP will provide necessary plans and documentation to fulfill the requirements of the permit submittal and approval process. As part of the PWP, an endowment to fund the project is required and will be established.

**C-20**

As stated in the EIR/EIS Section 2.10 and in PDF-6, the project would be required to maintain alternative access to portions of trails not under active construction. Access to portions of trails under active construction would be prohibited due to public safety concerns.

**C-21**

Trail improvements associated with future rail corridor projects would be located in the NCTD right-of-way and would not be critical to achieving SELRP project objectives; they are therefore out of the scope of this project. However, the SELRP would work in cooperation with agencies proposing rail corridor projects through the lagoon (such as NCTD or SANDAG) to coordinate and integrate new rail undercrossings or trail extensions.

**C-22**

Figures in the EIR/EIS have been updated to show the proposed trail.

**C-23**

Sea level rise guidelines that are available and pertinent are being considered for design of the SELRP. During concept development, state guidance from the CCC was not yet available, and methods used to calculate anticipated sea level rise over the life of the project (50 years) followed state guidelines from the California Coastal Conservancy and the governor’s Executive Order. This methodology is described in the SELRP Sea Level Rise Analysis (M&N 2010). The study indicated

C-23  
cont.

C-24

be consulted as well. Additionally, a table similar to Tables ES-1 and 2-17 that lists the predicted habitat acreages based on the climate change models should be included in the Final EIR/EIS.

C-25

The Draft EIR/EIS discusses the coordination of phasing with the approved NCC PWP/TREP; however, to further minimize project impacts efforts should be made to coordinate other aspects of the SELRP with the construction of the new Interstate-5 bridge and double tracking of the rail corridor, including construction access, parking, and staging areas. In addition, construction parking should be avoided at beach parking areas (San Elijo, Cardiff, Coast Highway 101) during summer, holidays, and weekends.

C-26

C-27

Thank you again for the opportunity to provide review and comment on the proposed project. As mentioned previously, this letter contains our preliminary comments; however, additional and more thorough project review will be provided as this significant lagoon restoration project continues to develop. If you have any questions or require further clarification, please do not hesitate to contact me at the above office.

Sincerely,



Kanani Brown  
Coastal Program Analyst III

Cc (copies sent via e-mail):

Sherilyn Sarb (CCC)  
Deborah Lee (CCC)  
Gabriel Buhr (CCC)  
John Dixon (CCC)  
Doug Gibson (San Elijo Lagoon Conservancy)  
Bruce April (Caltrans)  
Allan Kosup (Caltrans)  
Keith Greer (SANDAG)  
Bill Prey (SANDAG)

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that at 50 years from implementation, a possible sea water level rise of 2 feet may occur, and that estimate was carried through designs and analyses. The project was designed to function successfully with both existing sea levels and future 50-year post-construction sea levels by proposing habitats to occur at high-end elevation ranges, and to provide transitional habitat area.

#### C-24

As noted in Response to Comment A-20, Tables P-7 and 3.16-8 have been added to the EIR/EIS to provide additional discussion of anticipated habitat distributions under the predicted sea level rise scenario, but this distribution accounts for only one variable in climate change and is relatively speculative.

#### C-25

The County and Corps concur with the importance of close collaboration between the development of this project, the double-tracking project, and the I-5 North Coast Corridor project per the Kehoe bill (SD 468). The project coordination efforts outlined in the comment are addressed in more detail in the specific responses to the comment letters received from Caltrans and SANDAG. See responses to comments for Letter G (Caltrans) and Letter J (SANDAG) for more discussion of this topic.

#### C-26

The EIR/EIS acknowledges the need to minimize disruptions to beach parking during high use times and includes PDFs to specifically address this issue. PDF-68 requires the coordination of the schedule at individual materials placement sites to the extent possible to avoid major holidays and special events and PDF-69 specifies that dedicated parking lots will be identified for employee parking during peak beach attendance to minimize effects to public parking availability, as necessary. A shuttle would likely be necessary for some of the more distant lots.

#### C-27

The comment provides closing statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.



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September 29, 2014

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**Subject: Comments on the Draft Environmental Impact Report/Environmental Impact Statement for the San Elijo Lagoon Restoration Project (SCH# 2011111013)**

Dear Ms. Bantilan-Smith and Ms. Bradley:

The Department of Fish and Wildlife (Department) has reviewed the above-referenced Draft Environmental Impact Report/Draft Environmental Impact Statement (DEIR/DEIS) for the San Elijo Lagoon Restoration Project (Project) dated July 2014. The Department has identified potential effects of this Project on wildlife and sensitive habitats. The comments provided herein are based on the information provided in the DEIR/DEIS, a site visit on August 14, 2014, and our knowledge of sensitive and declining habitats.

D-1 The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (§§ 15386 and 15281, respectively) and is responsible for ensuring appropriate conservation of the state's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act (CESA; Fish and Game Code § 2050 et seq.) and Fish and Game Code Section 1600 et seq.

The Department also administers the Natural Community Conservation Planning program. The Project is within the Multiple Habitat Conservation Program (MHCP), a comprehensive conservation planning process that addresses the needs of multiple plant and animal species in Northwestern San Diego County. However, the subarea plans which would include San Elijo Lagoon have not completed the permit process and therefore would not cover take of listed species by the Project.

D-2 The proposed Project consists of restoring the San Elijo Lagoon with improved ecological function. The Project would reconfigure lagoon elevations through grading and dredging, and

#### D-1

The comment provides introductory statements; it does not raise a specific issue related to the adequacy of the EIS. Therefore, no specific response is provided. CDFW is included in the listing of responsible and trustee agencies in Section 1.3 of the EIR/EIS. Discussion of the MHCP and its applicability to the project site is provided in Section 3.6 Biological Resources.

#### D-2

The comment summarized details of the SELRP and environmental analysis; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

*Conserving California's Wildlife Since 1870*

D-2  
cont.

modify water flow into the lagoon through improved channels to achieve an enhanced distribution of habitat types, including transitional habitat to increase the resiliency of the lagoon to predicted sea level rise. The DEIR/DEIS also includes descriptions of changes to existing infrastructure such as widening of Interstate 5 freeway and replacement of the bridge over San

Elijo lagoon, bridge construction and/or retrofitting of Coast Highway 101, and double tracking of the North County Transit District (NCTD) railway which passes through the lagoon. With the exception of Coast Highway 101, modifications of the structures are separate projects that have provided environmental review and analysis of those modifications in other documents (SCH# 2010111008/SCH# 2004101076). This Project is also addressed in the North Coastal Corridor Public Works Plan/Transportation Resource and Enhancement Plan (NCC PWP/TREP), approved by the California Coastal Commission on August 13, 2014.

Design features and mitigation measures have been added to the Project to avoid or reduce potential environmental impacts. Sensitive biological resources in the vicinity of the Project are associated with the native terrestrial and aquatic habitats of the Escondido and La Orilla Creeks. Sensitive species located within or directly adjacent to the Project limits that may be adversely affected include CESA-listed and Endangered Species Act (ESA)-listed plant and animal species. Among the species which may be affected are: California least tern (*Sterna antillarum browni*), western snowy plover (*Charadrius alexandrinus nivosus*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) and salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*).

D-3

The Department provides the following specific comments and recommendations to assist the Army Corps of Engineers and the County of San Diego Department of Parks and Recreation in avoiding or minimizing potential impacts to marine life and habitats, sensitive native plants, wildlife, and vegetation communities identified in the DEIR/DEIS:

**Marine Life and Habitat Impacts**

**Cardiff and Moonlight Sediment Disposal Locations:**

D-4

The proposed Cardiff and Moonlight beach sediment placement sites and the SO-6 borrow site are within the Swami's State Marine Conservation Area (SMCA). The Department is concerned about the large volumes of sediment proposed for the Cardiff sediment placement site that would cause direct adverse burial and scour impacts to marine biological resources within the intertidal and subtidal.

D-5

The Department is concerned that if the proposed disposal volumes for either alternative 2A or 1B are deposited on the Cardiff sediment placement location there could be temporary or long term adverse impacts to rocky reefs, kelp, surfgrass, and established cobble habitat which could also negatively affect local fisheries. The increased risk of adverse impacts is supported by the high sediment disposal volumes proposed for Cardiff (800,000 cubic yards for Alternative 2A and 600,000 cubic yards for Alternative 1B) when compared with the 101,000 cubic yards placed at Cardiff during the 2001 Regional Beach Sand Project (RBSP I). These proposed alternative volumes are 6 to 8 times higher than the volumes placed and studied during RBSP I.

**D-3**

The comment provides general introductory statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**D-4**

The proposed onshore and offshore sand placement sites have been used as receiver or borrow sites for previous beach nourishment projects and were selected because they are located away from sensitive hard-bottom habitats. In addition, the beach placement sites were selected because of the historically high erosion rates (note that the Cardiff receiver site was 100 percent cobble prior to the 2001 RBSP). While direct impacts within the actual beach, nearshore, and offshore sites would occur similar to those for the 2001 and 2012 RBSPs, placement footprints were identified based on a lack of sensitive hard-bottom habitats. Footprints are characterized by sandy and/or cobble bottoms that are colonized by species adapted to the highly dynamic conditions of such areas. Direct impacts to the sites, including those resulting from burial and scour events, would not be considered significant because the sites do not contain sensitive hard-bottom habitats and support species adapted to dynamic conditions. Impacts would be short term as recovery would occur following construction. Section 3.6 discusses potential impacts associated with placement in more detail.

**D-5**

Although volumes proposed for placement within the Cardiff beach and nearshore sites would exceed those previously placed, numerical modeling similar to that used for the 2001 and 2012 RBSPs and the Encinitas-Solana Beach Storm Damage Reduction Project (USACE 2012) was used for the SELRP. Modeling was conducted to predict changes in shoreline morphology that could result from various volumes placed at each site as part of the SELRP, and volumes identified are not anticipated to result in significant impacts to biological resources, including fisheries, based on the modeling results (Appendix H). At the Cardiff site, both the beach and nearshore placement volumes were incorporated into the analysis, using a conservative analytical approach by comparing ebb bar sedimentation results from an adjacent lagoon (i.e., Batiquitos Lagoon).

As discussed in Section 3.6, the model predicted cross-shore sedimentation results for each project alternative to identify sensitive biological resources that could be affected by the project. Biological resources that could be affected by increased sedimentation associated with the SELRP are kelp present on riprap associated with the San Elijo Outfall, which is maintained (e.g., including kelp removal) through permit requirements by the San Elijo Joint Powers Authority.

D-6 | Additionally, the intertidal and shallow subtidal sandy bottom (benthic/epibenthic forage base) and the marine life community that utilizes this habitat could be significantly impacted. This habitat within the Cardiff sediment placement location is important to fish and bird foraging, the local fisheries and for marine biodiversity. The benthic invertebrate forage base is essential for healthy fish assemblages and for shorebirds. The large volumes of sand proposed with Alternative 2A and 1B would have permanent direct burial impacts on a large area of the forage base which may have a long-term impact on fish and shorebird assemblages and the local recreational fishery (Manning et al. 2013).

Torrey Pines and Leucadia Sediment Placement Locations:

D-7 | Pismo clams (*Tivela stultorum*) exist at the Torrey Pines and Leucadia deposition sites. As reported in the DEIR/DEIS, small numbers of juvenile Pismo clams were found in the last beach surveys conducted in 2009. Pismo clams are a long lived, low fecundity species which makes them more sensitive and vulnerable to burial, bulldozing/grading and sedimentation impacts. The Department is concerned that Pismo clams and their habitat could be adversely impacted by the Project.

All Sediment Placement Locations:

D-8 | Impacts to long lived, low fecundity, locally rare invertebrate species in open coast habitats are vulnerable to local extirpations from permanent and ongoing burial, sedimentation and bulldozing/grading. These species could take decades to re-establish in a disturbed sediment placement site. Smaller volumes of sediment placed with low slopes, thinner layers and with refuge areas (areas left unfilled) could reduce the potential adverse impacts and reduce the recovery time for these species (Schlacher et al. 2012, Hubbard et al. 2013).

D-9 | The proposed dredging equipment, pipes and anchors that would be used to dredge and transfer sediments to the disposal locations have the potential to disturb (noise, lights and turbidity) seabirds, and cause significant direct damage (crushing or gouging) to marine life.

D-10 | A potential for California grunion (*Leuresthes tenuis*) spawning activity may exist for some of the sediment placement locations. This species is considered vulnerable because their spawning behaviors and egg nest areas are sensitive to lights, turbidity, bulldozing and burial during the grunion spawning seasons between March and August.

D-11 | The Pacific Coast Western snowy plover (*Charadrius nivosus nivosus*) is federally listed as threatened and is a California species of special concern. There is nesting activity and critical habitat near the Torrey Pines sediment placement site, and potential foraging and roosting habitat in other sediment placement locations. The Department is concerned that Western snowy plovers could be harmed during construction and bulldozing at the sediment placement locations.

D-12 | Another upcoming project (Encinitas/Solana Beach Shoreline Protection project) proposes to dredge within borrow pits SO-5 and SO-6 and place sand onshore in the Cities of Encinitas and Solana Beach. The Department recommends consideration of a strategy to combine portions of the Encinitas/Solana Beach and the San Elijo Lagoon Dredging projects in a coordinated fashion. Potentially, the Army Corps could receive sediments for their future Encinitas/Solana Beach project by obtaining it from the proposed San Elijo Lagoon Project dredging phase.

## D-6

The EIR/EIS recognizes the importance of intertidal and shallow subtidal sandy bottom habitat. As noted in Appendix H of the EIR/EIS, soft-bottom habitats include sandy beaches and nearshore sandy or silty-sand bottoms, and are the predominant habitats in the region with sandy beaches covering approximately 80 percent of the shoreline in the Southern California Bight. With localized placement of material, large areas of the forage base that occurs throughout the San Diego region would not be impacted. Although direct burial would occur, it is not a significant impact because no long-term net loss in habitat value of sensitive biological habitats would occur. Furthermore, adding sand to the beach would increase the base for invertebrates and the foraging area for shorebirds over time. Based on the significance criteria used in the biological analysis, it was determined that effects associated with sand placement are expected to be localized and short term due to the extent of soft-bottom habitats throughout the San Diego coastline, resulting in less than significant adverse impacts to habitat/species, as discussed in Section 3.6.3 of the EIR/EIS.

## D-7

The occurrence of juvenile Pismo clams on a beach is not uncommon because they settle from plankton. However, developed Pismo clam beds consisting of different age classes only establish in certain areas where physical conditions are suitable. Therefore, while Pismo clams were observed at several of the receiver sites during the 2012 surveys, no sign of established Pismo clam beds was observed on north San Diego County Beaches (documented beds generally occurred on southern San Diego County beaches) (Merkel 2014; Appendix H to the SELRP EIR/EIS). For these reasons, significant impacts to Pismo clams are not anticipated.

## D-8

Material placement is proposed to occur only on several small beaches in San Diego County, and since sandy beach habitat is the dominant shoreline habitat in San Diego County, the localized temporary habitat disturbance would not be considerable on a regional level, and the design of the project provides for the majority of sandy beach habitat within San Diego County to remain unaffected by the project. In addition, following construction, sandy beach organisms would begin recolonizing the site almost immediately with recovery anticipated in relatively short timeframes (weeks, months, to <1 year) depending on when each site is nourished within the overall construction schedule.

Most studies have reported rapid recovery within 1 year or less for sandy beach intertidal animals after beach nourishment (NRC 1995, Greene 2002, SAIC 2007b). This begins almost immediately after cessation of construction. Habitat functions were studied for 3 years after the RBSP I at several beach sites in Encinitas, and were found to be enhanced relative to prior to the RBSP I in having: increased invertebrate prey variety earlier in the season, greater sand depths and grunion habitat suitability, and increased bird use of wider beach habitat across tide conditions (SAIC 2006). Habitat enhancement also was observed after the RBSP I on an adjacent beach within 1,500 feet downcoast of the Cardiff receiver site, although seasonal differences in habitat quality varied more at that site than the receiver site.

The placement of smaller volumes with lower slopes, thinner layers, and refuge areas may not be appropriate to meet the placement requirements of the project. These design concepts will be

considered during the permitting phase and in coordination with the permitting agencies, and incorporated as appropriate and feasible as part of the permit conditions.

**D-9**

See Response to Comment D-4. Pipeline placement would occur in areas surveyed to ensure no sensitive hard-bottom habitat is directly impacted, as required in PDF-55. Chapter 2 and Section 3.6 discuss other design features included as protective measures similar to those for the 2001 and 2012 RBSPs that would be implemented during construction of the SELRP.

**D-10**

The SELRP has the potential to enhance or increase persistence of sandy beach habitat at erosive beaches. This would be beneficial for grunion at placement sites where either dense cobble or narrow beach width limits spawning habitat under existing conditions. Monitoring after the 2001 RBSP demonstrated that beach nourishment enhanced sandy beach habitat functions at several beaches. The primary benefit was to increase the persistence of sandy beach habitat across seasons such that habitat was suitable early in the season to support the onset of the grunion spawning season (e.g., increased beach width and reduction in cobble) (SAIC 2006). As part of the project, SELC would implement a pre-construction habitat assessment to determine potential suitability for grunion spawning and implement grunion monitoring during construction. If spawning is observed, the monitor would recommend protective measures, which may include relocation/rescheduling of work/equipment to avoid and minimize adverse effects to this species during their spawning season. Vehicle routes may also need to be specified to minimize impacts if vehicle access to the construction site occurs along the beach (PDF-57).

Grunion monitoring would not be conducted to avoid a significant impact under CEQA, but rather is a condition we anticipate being required through the permitting phase. So it is not a mitigation measure, but is a project component since we are proactively including it. If it was not included, no significant impact would occur to grunion, which is a managed game species. Additional detail on grunion monitoring measures has been added to PDF-57.

**D-11**

The project has included PDF-74 specifically to avoid impacts to snowy plover at the Torrey Pines placement site. As described in Table 2-26 (Summary of Project Design Features/Monitoring Commitments and Minimization Measures), PDF-74 requires that sand placement at the Torrey Pines placement site be conducted outside of the bird breeding season (April 1 through September 15, or after August 1 with confirmation of cessation of nesting) and conduct monitoring during sand placement to avoid impacts to foraging snowy plover. Should foraging plover be present, the monitor will direct sand placement away from the foraging plover to allow time for the bird(s) to leave the site. In addition, night lighting shall be shielded and directed away from the back beaches. These measures would serve to avoid and minimize impacts to snowy plovers.

**D-12**

Chapter 5 of the EIR/EIS identifies the Encinitas-Solana Beach Storm Damage Reduction Project (previously known as the Encinitas/Solana Beach Shoreline Protection Project) in the cumulative project list. Discussion in Section 5.3.6 identifies the possibility that materials from the SELRP could

be substituted or supplement sand placed as part of that project rather than providing an additive volume of sand placed at various sites. Information in Table 5-1 has been expanded to clarify ultimate placement volumes associated with the Storm Damage Reduction Project and to indicate that depending on project timing, sand placement would be coordinated between the two projects and would not result in ultimately larger volumes of sand placed on each site. Additional explanation regarding the coordination of these projects has also been added to the introductory text in Chapter 5 to clarify that the SELRP and this project's sand placement volumes are not additive.



- D-13 | Dredging/filling of SO-6 and/or placement of large quantities of sediments at the Cardiff sediment placement site could be avoided with this strategy. Both projects could avoid marine resource and water quality impacts related to dredging, transferring (pipes to/from the borrow pits), and placing sediments on beaches. This strategy is supported by the Department for avoiding or significantly minimizing impacts within Swami's SMCA.
- Recommendations**
- Cardiff Location:
- D-14 | • Avoidance - The temporary and adverse marine impacts to Swami's SMCA could be avoided by using the Encinitas/Solana Beach project placement footprints (if feasible), instead of the Cardiff beach site or SO-6.
- Minimization - Bulldozing impacts to benthic invertebrates as well as burial impacts to subtidal rocky reefs, kelp, and seagrasses could be minimized by using one or more of the following methods:
- D-15 | a) Place no more than the maximum sediment volume previously placed in this location by the 2001 RBSP I project (101,000 cubic yards) or other reduced volume so that the majority goes in the shallow subtidal, avoiding rock or cobble fields, in order to avoid impacts to the forage base. Lesser volumes could go in the intertidal (thin layer) allowing for natural sediment distribution along shore to avoid or minimize bulldozing impacts.
- D-16 | b) Reduce and split the proposed nearshore sediment placement volumes and time the split placements over a two year span (or more).
- D-17 | c) Reduce the Cardiff or SO-6 sediment placement volume by placing additional amounts in the SO-5 nearshore borrow pit, if necessary.
- D-18 | • Monitoring - Sediment volumes previously placed and studied (101,000 cubic yards during the 2001 RBSP I project) may not need comprehensive baseline biological surveys. If volumes over 101,000 cubic yards are placed, then a comprehensive baseline biological survey and a "before and after construction" monitoring program is recommended. In this case, an agency approved impact monitoring and mitigation plan should be developed for any anticipated or potential adverse biological impacts. The updated baseline survey and reports should quantify and summarize potential adverse or temporary habitat/species impacts in terms of estimated species numbers and habitat area that may be lost or degraded from burial, scour, turbidity, high sloped and thick layer beach berms, unnaturally fine or coarse sand, and bulldozing. Locally or regionally sensitive, long-lived, unique and rare species and their habitats should be a priority in the survey program. Species and habitats vulnerable to cumulative sand replenishment projects and synergistic anthropogenic impacts should also be a priority. Estimates of the impacted area of forage base, fish assemblages, and recreational fishing should also be included.

#### D-13

See Response to Comment D-12.

#### D-14

See Response to Comment D-12.

#### D-15

The EIR/EIS addresses the maximum potential placement volume for each site to provide for analysis under CEQA and NEPA, but it is anticipated that less volume would be placed at some locations because the overall capacity exceeds disposal volume needs. Final placement volumes will be determined during the permitting and final engineering stages of the project. The sand placement quantities proposed do not trigger a significant environmental impact. Adding sand to the beach would increase the base for invertebrates and the foraging area for shorebirds, in addition to increasing grunion spawning area and the upper intertidal wrack area. Placement of sand at Cardiff Beach was designed to specifically not adversely impact hard-bottom habitat in the area due to dispersion patterns. Regardless of the quantity of sand placed, earthmoving equipment would need to operate on the beach and spread the material in to the berm template. On-beach use of earthmoving equipment would be temporary and outweighed by the habitat benefits of creating more beach area.

#### D-16

It is not feasible to split the material placement over a 2-year span as the material is transferred to the placement site directly from the dredging operations that would occur as one phase. However, the phase may require 10 months to complete, and the placement timing could potentially be lengthened within that phase if it provides a benefit. However, shortening the period of construction on the beach would likely minimize many potential impacts, as compared to multiple placement events or a longer placement period.

#### D-17

The project proponent includes sand placement at SO-5 as another option, if needed. Specific placement volumes for each site will be determined during the permitting and final design phase of the project through permit agency negotiation and once final export volumes are identified.

#### D-18

The request for reduced sand placement volumes at Cardiff is noted. See Response to Comment D-15 regarding the feasibility of smaller placement volumes. See Response to Comment B-11 for a discussion on the monitoring program anticipated for the project. Please note that additional monitoring requirements may be identified through the permitting process, including the need for baseline studies.

Swami's State Marine Conservation Area

- D-19 | In order to protect marine resources within the Swami's SMCA and to comply with the specific laws and regulations pertinent to the Swami's SMCA, the Department recommends that the impacts to the intertidal/subtidal forage base and subtidal rocky habitat from any chosen alternatives be avoided or minimized to a less than significant level. This could include reduced sediment placement at the Cardiff site and the nearshore borrow pit SO-6 (-30 feet mean sea level) within Swami's SMCA. Additional dredged lagoon sediments could be placed (to the extent feasible) in the beach locations for the upcoming Encinitas/Solana Beach Shoreline Protection project, rather than placing large sediment volumes at Cardiff and SO-6.
- D-20 |
- D-21 |

Pismo Clams

- D-22 | Updated, appropriate Pismo clam surveys should be conducted within the Torrey Pines and Leucadia sediment placement footprint prior to construction. Direct impacts to Pismo clam juveniles or adults should be avoided or minimized during construction. Department approved protection plans should be developed for locations where this species is found.

All Sediment Placement Locations:

- D-23 | • In order to reduce potential adverse impacts, enhance recovery of the food web, and minimize impacts to local fishing:
- a) Place smaller volumes of sediment at a time.
- D-24 | b) Design beaches with low slopes, thin sand layers and natural grain sizes.
- D-25 | c) Leave some areas unfilled (refuge areas).
- D-26 | • Dredging and pipe route locations, sediment placement timing, and start locations should be carefully selected to avoid or minimize disturbances to fisheries, sensitive or listed species, fish/bird foraging habitats, and to avoid nesting/spawning seasons where appropriate.
- D-27 | • Survey/protection plans should be developed (Department approved) for each particular sediment placement site. This should include protections for the beach ecosystem (including kelp wrack), seabirds, Western snowy plover, Pismo clams and California grunion as appropriate. Protection plan goals should be to protect and minimize impacts to the sandy intertidal benthic forage base and shallow subtidal food web, as well as protect bird breeding and fish spawning from dredging, burial, noise, lighting, turbidity and construction vehicles.

Sensitive Native Plants, Habitat and Wildlife Impacts

Rare, Threatened and Endangered Plant Species

- D-28 | Rare, threatened and endangered plant seed collection for management purposes would require a Research Permit (Fish and Game Code (FGC) § 2080) if no impacts to listed plants

**D-19**

Project design incorporates minimization of impacts to the extent practicable. Placement of sand at Cardiff Beach was designed to specifically not adversely impact hard-bottom habitat in the area due to dispersion patterns. Response to Comment D-6 discusses impacts to the intertidal/subtidal forage base. Section 3.6 of the EIR/EIS discusses potential impacts to the intertidal/subtidal forage base and subtidal rocky habitats. Impact conclusions identify less than significant impacts to those resources.

**D-20**

See Response to Comment D-15 for a discussion on the feasibility of the determination of placement volumes at Cardiff and SO-6.

**D-21**

See Response to Comment D-12 for information on coordination with the Encinitas-Solana Beach Storm Damage Reduction Project.

**D-22**

See Response to Comment D-7 for information on Pismo clams in the vicinity of the proposed placement sites. Established beds have not been identified in the SELRP placement sites; therefore impacts to established clam beds are not anticipated. See Response to Comment B-11 for a discussion on the monitoring program anticipated for the project. Please note that additional monitoring requirements may be identified through the permitting process, including the need for baseline studies, such as an updated Pismo clam survey.

**D-23**

See Response to Comment D-16 regarding sand placement volumes.

**D-24**

See Response to Comment D-8 regarding sand placement.

**D-25**

Sand placement sites would be located within portions of existing beach, nearshore, and offshore areas. Adjacent habitat would remain in place and would act as both refuge areas during construction and recruitment areas after placement.

**D-26**

See Responses to Comments D-9 and D-18. Numerous PDFs have been incorporated into the SELRP to require pre-construction surveys, monitoring, or breeding season avoidance to minimize the potential for species disturbance.

**D-27**

A number of PDFs have been incorporated into the project as standard required measures to minimize impacts to sensitive resources, as described in Table 2-26. For example, PDF-57 specifically addresses grunion, PDF-74 addresses snowy plover, and PDF-7 requires lighting to be directed away from sensitive areas. See Response to Comment B-11 for a discussion on the monitoring program anticipated for the project. Please note that additional monitoring requirements would be identified through the permitting process and in coordination with the appropriate agencies.

D-28  
cont.

occur from the Project, however a CESA incidental take permit would be required if plants or wildlife would be taken by Project activities.

Threatened and Endangered Wildlife Species

D-29

The Department has been involved in the planning process for the Project, and appreciates the efforts that have been made to consider various methods and careful timing of the Project elements to prevent any incidental mortality of threatened or endangered species. The Department recommends that all avoidance and proactive measures described in the document to prevent take of CESA and ESA listed wildlife species be implemented as part of the Project. As noted in the DEIR/DEIS, no mortality of light-footed Ridgway's rail is allowed (FGC § 3511(b)(9)). Additionally, take of California least tern or Belding's savannah sparrow is prohibited under CESA unless authorized by the Department.

Salt Marsh Habitat

D-30

The Department is concerned that under Alternative 2A, wave energy from the ocean would continue down the new entrance channel into the western basin, and would likely cause erosion similar to that found at Batiquitos Lagoon, impacting salt marsh within San Elijo Lagoon's western basin. This may require the use of erosion control along the shoreline to protect existing infrastructure (i.e. NCTD Railroad and Coast Highway 101). Although the wave energy is minor, it is generally sufficient at Batiquitos to erode fine sediments and loose soils as the tides move up and down shorelines, which has caused slope failure and loss of salt marsh within that basin.

D-31

The proposed disposal pit for the fine sediments will likely have subsidence over time as those sediments consolidate, which could affect the development of the target salt marsh habitat type. The Project should consider what amount of subsidence is likely in determining the as-built elevations of the sand cap for the disposal pit. Additionally, the Batiquitos Lagoon 1997 restoration project utilized "wicks" to help consolidate the sediments more quickly. The Department recommends that this or other techniques which may help accelerate the consolidation process be utilized if practicable.

Nesting Site

D-32

Overhead power lines adjacent to the nesting site have potential to provide perches for predators of California least terns and Western snowy plovers. The Department recommends that deterrents to roosting (e.g. "bird spikes") be installed to reduce the likelihood of predation, or if practicable, removing/undergrounding of the power lines as a preferred method to reduce the potential predator perch.

General Comments

D-33

The Project should only use erosion and sediment control measures such as fiber rolls and erosion control blankets that utilize biodegradable materials such as jute instead of plastic mesh, to avoid potential plastics pollution hazards to wildlife.

D-34

The Department is concerned about the cost of maintaining a permanent opening through dredging which would be required under Alternative 2A as we anticipate the costs of lagoon

**D-28**

Seed collection for rare, threatened, or endangered species is not anticipated, As mentioned in Section 3.6.1 of the EIR/EIS, no federally listed or state-listed rare, threatened, or endangered plant species occur within the areas proposed for restoration; if that changes, a California Endangered Species Act incidental take permit would be obtained and/or appropriate Research Permit would be requested following the California Department of Fish and Wildlife guidelines.

**D-29**

The comment is noted. No mortality of light-footed Ridgway's rail is expected and no take of California least tern or Belding's savannah sparrow should occur. PDF-21 specifically requires a habitat enhancement plan for light-footed Ridgway's rail and Belding's savannah sparrow.

**D-30**

Batiquitos Lagoon is different from San Elijo Lagoon and has a west basin that is primarily bounded by earth and hardscape. The east boundary of the Batiquitos Lagoon's west basin is mainly railroad berm, with a very short railroad bridge and narrow marsh channel. Waves that enter Batiquitos Lagoon tend to reflect and remain within the west basin, causing more erosion than would occur if waves were allowed to diffract and disperse over a larger area. Alternative 2A was designed to have a porous eastern boundary under the railroad bridge, which would span the width of the west basin to allow waves to pass underneath. This eastern basin boundary would allow wave energy to propagate and dissipate as it continues east toward the central basin. Waves that pass into the west basin would diffract, or spread out, within that basin. As the waves spread out, their energy would diminish and become less erosive. The primary location of concern for wave energy would be the railroad bridge abutments. As part of their project, the railroad is evaluating the need to armor their abutments and the west side of the rail berm to accommodate this wave energy. Habitat areas in the west and central basins would remain relatively unaffected, although there may be some measure of sediment resuspension and movement over time that may naturally adjust marsh areas, but not to a substantial degree. Wave energy within the west basin of Alternative 2A has been considered and is estimated to be insufficient to cause shoreline erosion that would damage habitat.

**D-31**

Ongoing engineering studies being done as part of final design indicate that the majority of consolidation would take place within the construction period and no additional measures to accelerate the consolidation process would be necessary (URS Corporation, unpublished data 2015). Since the last thing to be installed is the sand cap over the pit, the adaptive measure available to the project is to modify the cap thickness in response to consolidation rate. Depending on the consolidation rate, the cap can either be increased or decreased in thickness to result in the desired finished surface. The sand cap would be installed higher than the desired elevation so long-term settlement of material would result in the final site elevation. If this approach is insufficient in adapting to consolidation, then sand from subsequent maintenance dredging cycles may be used to augment the sand cap to keep up with the consolidation rate.

Ms. Lorrie Bradley  
Ms. Meris Bantilan-Smith  
September 29, 2014  
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D-34  
cont.

↑ maintenance may become excessive, as they have at both Batiquitos and Bolsa Chica wetland restoration projects. Should the Project select Alternative 2A, we recommend the funding mechanism for lagoon maintenance be established to the satisfaction of permitting agencies prior to implementation.

D-35

We appreciate the opportunity to comment on the referenced DEIR/DEIS. Questions regarding this letter and further coordination on these issues should be directed to Tim Dillingham at (858) 467-4250 or email at [Tim.Dillingham@wildlife.ca.gov](mailto:Tim.Dillingham@wildlife.ca.gov) or for marine/sediment disposal issues to Loni Adams at (858) 627-3985 or email at [Loni.Adams@wildlife.ca.gov](mailto:Loni.Adams@wildlife.ca.gov).

Sincerely,



Gail K. Sevrens  
Environmental Program Manager  
South Coast Region

ec: Sally Brown (USFWS)  
Scott Morgan (State Clearinghouse)

#### Citations

Hubbard, D.M., et al. 2013. Local extirpations and regional declines of endemic upper beach invertebrates in southern California. *Estuarine, Coastal and Shelf Science*, 1-9. (<http://dx.doi.org/10.1016/j.ecss.2013.06.017>)

Manning, L.M., et al. 2013. Degradation of Surf-Fish Foraging Habitat Driven by Persistent Sedimentological Modifications Caused by Beach Nourishment. *Bulletin of Marine Science*, 89(1):83-106. (<http://dx.doi.org/10.5343/bms.2012.1005>)

Schlacher, T.A., et al. 2012. The effects of beach nourishment on benthic invertebrates in eastern Australia: Impacts and variable recovery. *Science of the Total Environment*, P 411-417.

#### D-32

The project does not propose undergrounding of the existing utility lines in the vicinity of the nesting area. The project proponent will coordinate with SDG&E to determine whether there are future plans to underground the utility lines. If utility lines are planned to remain above the ground, the project proponent will discuss options with SDG&E for predator deterrents and anti-perching devices. The Final EIR/EIS has been amended to reflect deterrents to roosting, including provision of signs deterring access topped with anti-perch devices to reduce the potential for perching diurnal and nocturnal raptor; details for substrate requirements and coloration; evaluation of fencing; and direct continuity to nonvegetated mudflats (where possible). Lighting and glare would be minimized as described in PDF-7 of Table 2-26.

#### D-33

Appropriate BMPs would be identified during the development of a project SWPPP, but all BMPs would be biodegradable so as not to impact wildlife. BMPs anticipated to be used would include fiber rolls, jute erosion control blankets and silt fence.

#### D-34

Inclusion of the SELRP as part of the North Coast Corridor Project Public Works Plan/Transportation and Resource Enhancement Program (PWP/TREP) would provide an ongoing funding mechanism for future maintenance.

Section 6B of the PWP states that funds from SANDAG's Environmental Mitigation Program (EMP) would be used for the restoration and long-term management of coastal wetlands, including providing long-term nonwasting endowments for SELRP to fill funding gaps for maintenance and management activities. Further, the PWP requires that compensatory mitigation sites include long-term nonwasting endowments to fund management in perpetuity.

#### D-35

The comment provides closing statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.





State of California • Natural Resources Agency

Edmund G. Brown Jr., Governor

DEPARTMENT OF PARKS AND RECREATION  
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Lisa Mangat, Acting Director

September 23, 2014

Megan Hamilton  
Group Program Manager  
County of San Diego Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123  
Megan.Hamilton@sdccounty.ca.gov

RE: San Elijo Lagoon Restoration Project Draft EIR/EIS (SCH NO. 2011111013) Aug.2014

Dear Ms. Hamilton,

E-1

Thank you for the opportunity to comment on the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS; August 2014) for the proposed San Elijo Lagoon Restoration Project (SELRP), located in the southernmost portion of the city of Encinitas where Escondido and La Orilla creeks meet the Pacific Ocean. California State Parks (CSP) is the land manager of San Elijo and Cardiff State Beach which borders the Project Restoration site to the west. CSP also owns most of the Beaches and access points where sand excavated from the project will be placed: Leucadia State Beach (operated by the City of Encinitas), Moonlight State Beach (operated by the City of Encinitas) Cardiff State Beach, an access route to Solana Beach, and Torrey Pines State Beach).

E-2

We understand that there are three alternatives proposed in addition to the "No Project" Alternative:  
2A, Relocation of the primary inlet approximately 1,400 feet south of existing Inlet, construction of Cobble blocking features (CBF), and placement of approximately 1,413,000 cubic yards sand on the beach and nearshore;  
1B, Expansion and Increase of flows through the existing Inlet and 1,213,000 cubic yards sand on the beach and nearshore; and  
1A Excavation of large channels to improve tidal flows, minimal excavation outside of channels, no beach nourishment.

E-3

In general CSP supports the goals of the SELRP to enhance and restore the physical and biological functions and services of San Elijo Lagoon. The largest concerns to CSP regarding the SELRP involve changes and disruption to our land and operations at the state beaches. The campground at San Elijo State Beach is one of the most popular coastal camping areas in the entire state. The northern day use lot at Cardiff State Beach is among the most popular in northern San Diego County. Both operations will be potentially affected by both Proposal 2A and 1B:

E-4

Alternative 2A  
2A has potential to improve the sustainability of the San Elijo State Beach Campground (Campground). Over the last decade more than 60 feet of the south end of the Campground has been lost to storm damage and wave action/tidal flows. Relocation of the inlet approximately 1,400 feet to the south will likely reduce the frequency and intensity of tidal flows

#### E-1

The role of California State Parks (CSP) as land manager of San Elijo State Beach and Cardiff State Beach, as well as ownership of other beaches proposed for material placement, is noted.

#### E-2

The comment summarizes alternatives as proposed in the EIR/EIS; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### E-3

The general support of CSP for the goals of the SELRP and concerns that land and operations at San Elijo State Beach and Cardiff State Beach would be affected is noted. The comment does not raise a specific issue related to the adequacy of the EIR/EIS, and individual concerns are detailed and responded to in following comments.

#### E-4

The commenter provides information outlining how the relocation of the inlet may benefit the south end of the San Elijo State Beach campground. The information does not raise a specific issue related to the adequacy of the EIR/EIS; therefore no response is provided.

E-4 cont. ↑  
 E-5  
 E-6  
 E-7

and wave action in close proximity to the campground and may reduce the rate of erosion on this popular public facility. Additionally, since the maintaining the northern inlet would be less critical under 2A, beach nourishment north of the existing inlet along San Elijo State Beach and (especially the south end of the Campground) may become practicable and could serve to reduce the rates of bluff erosion. CSP requests that SLERP address the feasibility of beneficial reuse of sand at San Elijo State Beach and the south end of the Campground as part of Alternative 2A. The DEIR/EIS should include a feasibility analysis of using the south end of San Elijo State Beach as a potential beach nourishment site prior to certifying the DEIR/EIS.

E-8

Alternative 2A may have a potential effect on Cardiff State Beach in the loss of approximately 1 acre of State Beach from the CBF features and the new inlet. However, it is possible that this loss may be offset by the closure of the northern inlet and the additional beach area created through the various beneficial reuse sand placement sites. CSP requests that the loss of 1-acre of public beach be analyzed prior to the Certification of the DEIR/EIS.

E-9

Alternative 2A will also result in the addition of a new and more hydraulically dynamic inlet at Cardiff State Beach. While this may improve recreational water sports in the vicinity it may also result in a more dangerous condition that requires additional lifeguard contacts and rescues. The DEIR did not address this potential impact to public safety and recreational opportunities.

E-10  
 E-11  
 E-12

In construction of a new inlet, it is recommended that any deep trenching or mechanical excavation include an archaeological and Native American monitor as part of the monitoring plan. Prior to development of monitoring program San Diego Coast District Archaeologist should be consulted and a DPR 412A (Archaeological Investigations Permit) should be obtained for any field work, including cultural monitoring, on State Parks land. It is also requested that all project related cultural resource documents, DPR 523 forms, and final monitoring report be submitted to SDCD Archaeologist Nicole Turner (Nicole.Turner@parks.ca.gov).

E-13  
 E-14

**Alternative 1B**  
 Alternative 1B would result in greater volume and intensity of tidal and storm water flows at the existing inlet. CSP is deeply concerned that these flows will contribute to the erosion at the south end of San Elijo State Beach Campground and result in a significant impact to recreational resources. Although requested in the SELRP Notice of Preparation (CSP Letter 12/15/2011) the DEIR/EIS did not address this issue. The SLERP does propose adding armoring to the interior portion of the inlet near the 101 bridge but leaves the land west of the 101 bridge unprotected. Even if the changes in inlet hydrology were found not to have a significant effect on the Campground, CSP is limited in its options to protect the popular public facility. With the inlet remaining in this location beach replenishment as a means to provide shoreline protection and enhancing recreation opportunities is not feasible because the sand can contribute to the closing of the inlet. CSP would not support Alternative 1B unless there is a means incorporated in the project scope (such as armoring) to address erosion at the south end of the campground and the north end of the day-use parking lot.

E-15 ↓

**Alternatives 1B and 2A**  
 Alternatives 1B and 2A both result in substantial quantities of beach quality sand placed on local beaches within the same littoral cell. While these activities are generally beneficial to CSP and State Beach visitors there are some related impacts that require further discussion. CSP is concerned that the placement of approximately 1,213,000 cubic yards of sand placed in the littoral cell north of Los Peñasquitos Lagoon may greatly increase the inlet maintenance costs at Los Peñasquitos Marsh Preserve for several years following the project. Following the recent sand replenishment project (RBSPII) the Inlet has received substantially more material in the Lagoon resulting in more frequent closures and higher dredging costs. The DEIR/EIS does not

## E-5

The comment is correct in that under Alternative 2A the existing inlet would not be maintained and is expected to close and return to a sandy beach area. Material placement on this beach area is not proposed as part of the SELRP.

## E-6

San Elijo State Beach and campground as material placement sites were considered but eliminated from consideration due to the proximity of Cardiff Reef, which has sensitive resources that could be affected by the placement of large sand quantities north of the inlet. However, placement of sand along Cardiff Beach and in the nearshore off the beach would benefit the south campground because the sand moves both north and south during littoral processes in this location. Therefore, some sand from nourishment would move north to increase the width of the beach along the southern portion of the campground.

## E-7

See Response to Comment E-6 regarding using San Elijo State Beach and campground as material placement sites.

## E-8

It is correct that Alternative 2A would require an area currently serving as open beach area to be converted to a new inlet area and associated CBFs. As detailed in the EIR/EIS Land Use/Recreation Section 3.1.3, under Alternative 2A the existing inlet would eventually close, leaving this area consistently accessible to beach users. Essentially, the existing and new tidal inlets would switch land uses; the existing tidal inlet would close and return to fully accessible beach use, while the new tidal inlet would become a channel, consistent with the current uses of the Cardiff Beach area in this location. For this reason, Section 3.1.3 of the EIR/EIS analysis concludes that upon project completion, no substantial net change or loss in publically accessible beach area would occur from the new inlet because the existing tidal inlet channel would close and be replaced with the new channel.

## E-9

The EIR/EIS addressed public safety and recreational opportunities related to the new inlet and CBFs under Alternative 2A in Section 3.15, Hazardous Materials and Public Safety. The EIR/EIS identifies a significant public safety impact due to the new inlet and hazards it might create for persons who may stray too close and place themselves in situations that may result in injury should they be thrown against the CBFs, or swept into the inlet or a rip current. The EIR/EIS also states that limited lifeguard services are provided by the California Department of Parks and Recreation at Cardiff State Beach. The presence of lifeguards closer to the new inlet and CBFs would help reduce public safety hazards. Warning signs would also enhance public awareness to avoid potential safety hazards. Public unawareness is the greatest factor contributing to significant public safety hazards near the new tidal inlet and CBFs under Alternative 2A. Mitigation measures Haz-1 and Haz-2 are included to require continued coordination with the California Department of Parks and Recreation regarding location of the mobile lifeguard tower (State Lifeguard Tower No. 6) and signage to enhance public awareness.

## E-10

Section 3.7 Cultural Resources of the EIR/EIS identifies a significant CEQA impact due to potential

for undiscovered buried cultural deposits, including human remains, in stable sediments in the proposed inlet/bridge vicinity under Alternative 2A. Mitigation measure Cultural-1 requires that a Monitoring and Discovery Plan be prepared and includes an archaeological and/or Native American monitor as recommended in the comment.

**E-11**

The comment is noted. The SELRP would follow regulatory requirements, including obtaining a DPR 412A (Archaeological Investigations Permit) if fieldwork or cultural monitoring were required on State Parks land.

**E-12**

The comment is noted. As requested, the SDCD Archaeologist contact information will be included in the distribution list for project-related cultural resource documentation.

**E-13**

The existing erosion condition at south San Elijo State Beach and campground is not related to processes and conditions at the tidal inlet channel, but rather to high ocean waves reaching that site during high tides in winter. There is also anecdotal evidence that pre-frontal southwest winds also direct wind-generated waves directly at that portion of the southern campground and add to the erosion condition. The beach along Cardiff has existing issues with erosion, as evidenced by revetment along the shoreline south of the existing tidal inlet and along Highway 101. Implementation of an alternative that produces sufficient sand volume to nourish Cardiff State Beach (both Alternatives 1B and 2A) would provide a benefit to the southern end of San Elijo State Beach and the campground as some of the material would move north to feed that beach. Increased tidal and storm flows from Alternative 1B would remain within the inlet channel and be directed toward the ocean, and would not affect erosion along the boundary of the campground to the north. Hydraulic modeling of the nearshore zone during ebbing tides shows that flow velocities are highest within the channel and very low along the channel boundaries (Appendix N).

**E-14**

See Response to Comment E-13; the SELRP would provide protection for areas in which erosion would be increased due to changed inlet conditions. It is outside the scope of the lagoon restoration project to provide a means for enhancing state beach and campground recreation opportunities and to provide additional shoreline protection from impacts unrelated to project implementation. Opposition to Alternative 1B as proposed is noted.

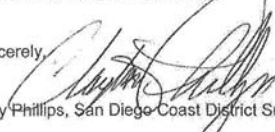
**E-15**

Los Peñasquitos Lagoon has an unstable tidal inlet due to its limited tidal prism and consequent inability to flush sand from its entrance. Sand moving into the lagoon is from both the north and south, depending on season and conditions. SANDAG monitored beaches after the 2012 RBSP and quantified that for the first year, the sand quantity placed on Solana Beach upcoast of Los Peñasquitos Lagoon remained within the city. Sand from other projects (e.g., San Dieguito Lagoon Restoration) was placed closer to Los Peñasquitos Lagoon prior to the time of inlet instability. The SELRP would monitor conditions along the coast in the vicinity of sand placement to identify lagoon effects. As



- ↑
- E-15 cont. address these potential significant effects on down shore lagoon management. At a minimum the SELRP should set aside contingency funding to address significant downshore effects from the beach nourishment.
- E-16 Additionally, CSP expects that there will be short-term and long-term impacts to our operations caused by SELRP construction and annual maintenance. SELRP will require use of CSP land for staging and sand placement. These activities are disruptive to public safety and recreational activities, public good will, and can reduce critical CSP revenue. Currently, the San Elijo Lagoon Conservancy and CSP work well together during the annual maintenance activities (typically less than 35,000 cubic yards over a week long period). The Larger-scaled project with a much longer duration (approximately 36 months) and higher volumes of materials will require a greater burden of CSP staff time and expense. CSP requests that if approved SELRP will provide adequate funding and staffing within the construction contract to maintain public safety and access during project construction.
- E-17
- E-18 Additionally, Alternatives 1B and 2A would result in higher volumes of dredged material from annual maintenance. CSP requests that there is a perpetual funding mechanism to support public safety and access needs on State Beaches during annual inlet maintenance activities.
- E-19 CSP is also concerned with the loss of approximately 50% of breeding habitat of Belding's savannah sparrow. CSP appreciates the integrity of the DEIR/EIS in reporting this as a significant impact. CSP suggests that there may be feasible mitigation opportunities regionally to provide mitigation or at least reduce the effects of the temporal losses during construction. Potential mitigation could include supporting inlet maintenance or habitat enhancement at Los Peñasquitos Lagoon and Conducting a regional inventory and conservation plan for the region including San Dieguito, Los Peñasquitos, and San Elijo Estuaries.
- E-20 **Alternative 1A**  
Alternative 1A does not adequately accomplish the Lagoon Restoration goals and may result in increased erosion at the existing inlet, so CSP is not supportive of this alternative.
- E-21 I want to confirm that we will support the Project when our concerns are adequately addressed. If properly implemented, the Project to enhance tidal flows within San Elijo Lagoon can be a great benefit to regional conservation and California State Park visitors. We look forward to working with the Project proponents and helping to plan and arrange for staging and construction so that we can minimize the effect on the Community and CSP visitors. Please feel free to contact my District Services Manager Darren Smith (619) 952-3895 if you have any questions or need for clarification.

Sincerely,

  
Clay Phillips, San Diego Coast District Superintendent

Cc. Robin Greene, Sector Superintendent  
Darren Smith, District Services Manager  
Nicole Turner, District Archaeologist  
Cindy Krimmel, District CEQA Coordinator  
Reading File

sand is proposed for placement much farther from Los Peñasquitos Lagoon than other lagoons, effects on Los Peñasquitos Lagoon are not anticipated to be significant, as discussed in Section 3.3.3 and identified in Table 3.3-2. If increased sand was detected at Los Peñasquitos Lagoon as a result of the SELRP, the San Elijo Lagoon Conservancy and SANDAG would contribute funding to Los Peñasquitos Lagoon maintenance dredging efforts commensurate with an agreed-upon sand volume originating from the project.

#### E-16

As detailed in Section 2.10.5 and Table 2-25, a staging area may be required on Cardiff State Beach for all alternatives. Temporary staging and stockpile areas would be returned to pre-construction conditions. Potential parking areas have been identified in the San Elijo State Beach parking lots and the Cardiff State Beach parking lot, along with multiple other possible locations. PDF-69 requires dedicated parking lot spaces or shuttles from farther lots for construction employees. As detailed in the EIR/EIS, the SELRP includes public safety protection measures specific to construction staging and work areas, including the use of barriers, signs, flagmen, and fences where applicable (PDF-4, 5, 33, 34). While it is understood and acknowledged that construction activities can be disruptive to surrounding land uses, with implementation of these public safety measures the EIR/EIS found less than significant impacts due to construction staging or work areas.

It is also correct that some short-term beach closure may be required for material placement; however, the EIR/EIS identified this as a less than significant impact to recreational opportunities as adjacent beach areas would continue to be available for use and beneficial recreational impacts to the improved sandy beaches would result.

#### E-17

As detailed in Table 2-26 of the EIR/EIS, the SELRP includes public safety protection measures specific to construction staging and work areas, including the use of barriers, signs, flagmen, and fences where applicable (PDF-4, 5, 33, 34). As part of sand placement on the beach, the SELC would be in constant communication with local jurisdictions and safety agencies (e.g., lifeguards) to ensure notification and safety measures are implemented along with other public safety design features (PDF-63 through 67). Additional CSP staff time and expense are not anticipated due to staging areas located on their lands.

#### E-18

Alternative 2A would require a substantially higher volume of material to be removed during maintenance activities and a longer timeframe relative to existing inlet maintenance. However, Alternative 2A ongoing maintenance would not occur on an annual basis but every 3 years. Alternative 1B would have ongoing annual maintenance activities that are relatively similar to existing maintenance activities. As described in Response to Comment E-17 above, the SELRP incorporates a variety of public safety measures that would be implemented by the project to ensure public safety during construction and maintenance operations. Funding for maintenance of the SELRP, including inlet maintenance and placement activities, would be available through an endowment required prior to project implementation. See Response to Comment D-34.

**E-19**

Avoidance and minimization measures for impacts to Belding's savannah sparrow have been incorporated into the project as project design features, as detailed in Table 2-26. These features include clearing and grubbing outside of the nesting season (PDF-12), creation of refugia during construction, and implementation of a habitat enhancement plan during construction to enhance retained habitats for the species during construction (PDF-21). With these project design features, significant short-term impacts would still occur during construction of Alternative 2A or 1B. However, implementation of Alternative 1B – Refined substantially lessens the suitable nesting habitat impacts, reducing short-term impacts to less than significant and not substantially adverse. A regional inventory and conservation plan and or inlet maintenance at Los Peñasquitos Lagoon would not mitigate temporary impacts to the local population of Belding's savannah sparrow, as it would not increase or improve habitat for the species during construction; therefore, it has not been included as part of the project.

**E-20**

See Response to Comment E-13. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**E-21**

The comment provides closing statements and is noted.



29 September 2014

Ms. Meris Bantilan-Smith  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

Subject: Review of the Draft Environmental Impact Statement (DEIS) for the San Elijo Lagoon Restoration Project, CA

Dear Ms. Bantilan-Smith:

F-1 Thank you for the opportunity to comment on the Review of the Draft Environmental Impact Statement (DEIS) for the San Elijo Lagoon Restoration Project, CA. We appreciate the immense amount of work that has gone into this document and the planning efforts to restore the lagoon over the last 10 years. The Coastal Conservancy has been an active participant in the Stakeholders Group for this project and we look forward to continued collaboration.

We have the following comments to assist your preparation of the Final EIS.

**Project Need and Objectives**

F-2 We support the four objectives of the project: 1) physical restoration of hydrologic functions, 2) biological restoration of habitat and species, 3) and maintenance of restoration efforts, and 4) maintenance and recreation and education. However, we do not agree with some of the sub-objectives within these four categories, particularly the physical objectives.

F-3 The physical objectives do not seem to align with the overall project goals and the biological objectives. Physical objective 1.A., which states "open lagoon mouth regularly, or create a permanently open mouth, to maximize the overall functions and services of the lagoon..." is not aimed at restoring ecological functions. The San Elijo Lagoon is an intermittently-open estuary, as are many estuaries throughout California. Converting an intermittently-open estuary to a permanently-open estuary by creating a permanently open lagoon mouth does not maximize ecological functions and services of the lagoon. In addition, this type of habitat conversion should not be considered restoration but should be more accurately described as "enhancement" or "creation". This type of habitat conversion has occurred elsewhere in Southern California and it is leading to a region-wide loss of rare habitats such as salt marsh, salt flat and salt marsh/freshwater marsh transitional areas. Physical objectives should focus on removing constrictions to tidal

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**F-1**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**F-2**

The comment states support for the four objectives of the project; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**F-3**

The comment states disagreement with certain sub-objectives of the project; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**F-4**

Maintaining a regularly open inlet is one element of the SELRP proposal. Under Alternative 1B – Refined, which has been identified as the preliminary LEDPA, inlet management would be similar to current management strategies. Currently, the inlet is kept open most of the time but allowed to close during the winter season. Once the project is completed and a portion of the high nutrient loads are removed, the system may be able to close in the fall as well. Additional information has been added to Section 2.1.2 clarifying current management strategies. A large variety of beneficial effects would result from the permanent or regularly open lagoon mouth, such as increased tidal flushing and exchange, hydraulic efficiency in allowing freshwater flows to exit the lagoon, overall water quality improvement, better flood control, and improved vector control, among others.

**F-5**

San Elijo Lagoon historically had periods of intermittent inlet closure prior to the development of the watershed. Current conditions result in a dry weather flow of approximately 1 mgd of freshwater input to the lagoon, which has resulted in conversion of historic salt marsh and salt panne habitat to brackish water habitats such as cattails in the east basin. A permanent or more regularly open lagoon mouth has been identified as providing the most beneficial ecological and hydrologic conditions for the planned restoration efforts, given current pressures on the lagoon.

**F-6**

The specific term used in the project title is not critical to the environmental analysis of the EIR/EIS. While many terms are considered appropriate for the efforts being proposed by the SELRP, restoration of the lagoon's ecological functions and services to a healthy and well-functioning system is key. Thus, the use of the term restoration is appropriate.

**F-7**

The recently released Wetlands of the Southern California Coast: Historical Extent and Change Over Time by the Southern California Coast Water Research Project concludes that, while vegetated wetlands (e.g. salt marsh) have suffered the greatest loss in terms of area, unvegetated wetlands, such as mudflat and salt flat, have suffered the greatest proportional loss in the region. Additional discussion of these regional trends has been added to Chapter 2 as appropriate.

- F-8  
cont. ↑ circulation to support tidal wetlands habitat where appropriate, and restoring natural hydrological function to the extent possible. We recommend revisiting and potentially revising the physical objectives to better align with biological and ecological objectives.
- F-9 The Purpose and Need (starting on page 1-6) presents several arguments for the need for the proposed project. One of the stated needs is to restore mudflat because the mudflat that currently exists at the lagoon is a relic of impounded water and is now being revegetated with salt marsh. This revegetation of relic mudflats doesn't justify major alterations to channel configuration and massive dredging of existing habitats. From our involvement on the Stakeholder Group we recall that a major need for the project was to restore sediment quality because of high nutrient levels. That issue was not addressed in the Purpose and Need. Table 1-2 states that the Purpose and Need discusses the regional perspective and the project to meet regional needs. We did not see a discussion of regional needs in that section.
- F-10
- F-11

#### Hydrological Function

- F-12 The physical objectives and much of the language surrounding hydrological changes of the proposed project are not in line with an ecological restoration project. There are multiple references throughout the document, in several sections, to the "inefficient channel system and lagoon mouth". The document discusses "improving" channels by widening and straightening them. Wider and straighter channels do increase the movement of water, but they not necessarily improving ecological and hydrological functions. We would argue that this project does not "improve hydrologic function" (page 3.6-79) in terms of how estuaries should function. Instead, it would make the system hydraulically more efficient, in terms of engineering. Increasing tidal action is not the same thing as improving it. This focus on increasing hydrological "efficiency" is a result of trying to achieve physical objective 1.A., as discussed above.
- F-13
- F-14 The document states in several places (i.e., page 3.6-2) that, "in order for the lagoon environment to be highly productive, it must be continually replenished with water and nutrients from the ocean", and that the mouth of the lagoon does not close due to hydraulic inefficiencies (page 3.4-1). The document also states in several places that San Elijo Lagoon is inherently deficient because the mouth closes. We disagree with these statements. San Elijo Lagoon is an intermittent estuary that is being managed as a perennally-open system. Intermittent estuaries, such as bar-built estuaries, regularly close off from the ocean. This is an important driver of their hydrological and biological functions. Intermittent estuaries are not "broken" systems. The difficulty that we have, particularly in Southern California, is that they are very difficult to manage. The question that we need to ask in order to better understand how to manage San Elijo Lagoon is; how much of the muted tides and regular mouth closures are caused by normal characteristics of an intermittently-open estuary, and how much is due to impacts of infrastructure on water circulation? There are obviously many constrictions and alterations that have occurred at the Lagoon that are affecting its physical functioning. If muting of the tidal exchange is the main hydrological problem at the lagoon, the constrictions to tidal flow that have been built in the lagoon, such as bridges, berms and roads, should be removed. By building wider and straighter channels and a more open lagoon mouth, we are converting, not restoring, the hydrological functions of the Lagoon.

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#### F-8

The physical objectives outlined for the project complement the biological and ecological objectives as identified in Section 1.2. As described in the Responses to Comments F-4 and F-5, the physical objectives have been designed to allow the SELRP to meet the project purpose to enhance and restore the functions and services of San Elijo Lagoon as an ecosystem.

#### F-9

The SELRP goals and objectives are to enhance and restore the functions and services of the lagoon at the lagoon level rather than being focused on specific habitat types. Specific goals and objectives focus not only on biological goals, such as providing a balanced habitat distribution of both vegetated and unvegetated intertidal habitat types, but also physical and management goals and objectives. San Elijo Lagoon is not only converting rapidly with respect to habitat distributions, it is also a 303(d) listed waterbody for various water quality parameters, including eutrophic conditions, bacteria, and sedimentation. Proposed dredging of sediments within lagoon basins is not only designed to lower elevations to certain habitat elevation ranges and slow or halt ongoing conversion, but also to address the water quality issues that have resulted in the 303(d) listing. A large factor in the existing water quality issues is related to sediments that have historically accumulated nutrient levels causing eutrophication within the lagoon, and removal of those sediments is critical to the SELRP. Text has been added to Chapters 1 and 2 as appropriate to emphasize existing water quality issues within the lagoon.

#### F-10

See Response to Comment F-9.

#### F-11

The purpose and need identifies the objective of the SELRP to enhance habitats for native species to maintain species diversity appropriate to habitat distribution and regional needs. While regional needs have been taken into account in identifying habitats appropriate for the project, specific habitat distribution and balance has been designed with a focus on the specific needs of the species within San Elijo Lagoon. The recently released Wetlands of the Southern California Coast: Historical Extent and Change Over Time by the Southern California Coast Water Research Project concludes that, while vegetated wetlands have suffered the greatest loss in terms of area, unvegetated wetlands, such as mudflat, have suffered the greatest proportional loss in the region. Additional discussion of these regional trends has been added to Chapter 2 as appropriate.

#### F-12

The SELRP would widen and straighten the main channel extending from Escondido Creek to the ocean inlet of the lagoon. The purpose of this increase in the main channel is primarily to enhance the efficiency of draining the more than 1 mgd of freshwater the lagoon receives daily from the developed watershed. Increasing the hydraulic efficiency of the main channel would also enhance the ability of the tide to extend farther east into the lagoon. This increase in hydraulic function for the lagoon would reduce impoundment of freshwater and increase saltwater influence in the east basin, so would increase ecological function in that portion of the lagoon. Secondary and tertiary channels that are primarily designed to enhance tidal inundation and circulation within the lagoon basins would be more similar to estuarine systems, and would be sinuous and of various sizes.

**F-13**

See Response to Comment F-12. Increasing hydraulic efficiency of the lagoon and its ability to drain freshwater flows from the watershed are important to maintaining a functioning saltwater intertidal system. Given the current constraints on the lagoon, including pressures of development of the watershed that result in dry weather flows of more than 1 mgd, increasing efficiency within the main channel by expanding the channel cross-section is a key component of the SELRP.

**F-14**

Evidence exists that San Elijo Lagoon was once a perennially open system, prior to substantial man-made intervention. While intermittent bar-built estuaries of the central and northern California coast may have high ecological functions, before San Elijo Lagoon was managed as a perennially open system its ecological functions were degraded. The negative effects of inlet closure under current constraints faced by wetland systems have been documented at many southern California lagoons and estuaries, including San Elijo Lagoon (Zedler 1982). Therefore, at the project site, high estuarine productivity has been identified as dependent upon tidal influence. Urbanization within the Escondido watershed has accelerated freshwater storm flows, generated year-round urban runoff, and increased chemical contaminant and nutrient loads within the lagoon. Additional discussion has been included in Section 2.1.2 to clarify the current constraints under which San Elijo Lagoon functions and the need to maintain the lagoon as a predominantly open inlet system. Current management of the inlet at San Elijo Lagoon focuses on managing water levels for both water quality and biological function. The inlet is allowed to close when water temperatures are cool outside of the bird nesting season. Warm water temperatures with little circulation quickly lead to eutrophic conditions due to the nutrient-rich sediments in the lagoon, which can result in fish kills, and elevated water levels during the bird nesting season can inundate nests of sensitive species, so in those conditions an open inlet is maintained.

While it is correct that there are multiple man-made constrictions and alterations that have occurred within the lagoon and clearly have influence on the physical function of the lagoon, the removal of those infrastructure features such as bridges, roads, railroad, etc. is not within the scope of the lagoon restoration project and likely not feasible as they provide north/south access and alternative routing is not available. Thus, the lagoon restoration design must work within the limitations resulting from existing infrastructure. Separate projects to improve I-5 and the LOSSAN railroad crossing are proposed by others as noted in Chapter 1 of the EIR/EIS. The SELC is coordinating with Caltrans and SANDAG, respectively, to address additional hydraulic improvements that would be needed under each of the SELRP alternatives.

#### Ecological Function

- F-15 | The rationale of “restoring” mudflat because the existing mudflat is a relic is not well justified (page 2-4). The *Historical Ecology of Northern San Diego County Lagoons Study* (San Francisco Estuary Institute in press) showed that mudflat did not exist here 200 years ago, when the system was functioning more naturally. Will creating mudflat here help the system function better overall? Are there key mudflat species missing from the lagoon or that will be lost? It is not clear how increasing coverage by salt marsh vegetation is a problem, especially when it has resulted from increased tidal circulation, which is an objective of this project.
- F-16 |
- F-17 |
- F-18 |
- F-19 | Page 1-7 states, “habitats have been converting to less diverse habitat mix”. Please provide the support for this statement. While the relic mudflats are being gradually revegetated with salt marsh plants, we don’t think this constitutes a less diverse habitat mix.

#### Sediment

- F-20 | The Lagoon has sediment and water quality problems. For example, when the inlet closes, the water column within the lagoon can become eutrophic within 24 hours due to nutrient loads in the sediment (page 3.4-2). The Regional Board’s water and sediment quality objectives (page 3.4-3) provide important justification for the proposed project. These sediment and water quality needs should be more explicit in the Purpose and Need and more explicitly connected to the Physical Objectives of the project. Sediment and water quality restoration provides a better justification for increasing hydraulic efficiencies of tidal channels than ecological restoration.
- F-21 | The permanent impacts to sediment quality need to include an analysis of the loss of beneficial sediment chemistry. Many studies indicate that sediment chemistry can take hundreds of years to recover following disturbance. What is the citation for the statement that habitats recover in 5-10 years (Page 3.6-46) when topsoil has been removed and replaced? What is the citation for the statement that biological communities can recover in 1-2 years after restoration? Does that include benthic communities after the topsoil has been removed and replaced? The amount of sequestered carbon in the marsh sediment that would be lost from dredging activities should also be evaluated.
- F-22 |
- F-23 |
- F-24 |
- F-25 |

#### Alternatives

- F-26 | Alternative 2A has too much impact to existing mid- and low-marsh and freshwater/brackish marsh without noticeable gains to ecological function or species support. There is not enough ecological gain to justify implementation of this alternative.
- F-27 | Alternative 1B has significant impacts to existing habitats. This proposal would result in the loss of mid-marsh, salt flat and brackish marsh in exchange for open water and channels. The limits of disturbance are too large to justify the ecological gains from this alternative.
- F-28 | Alternative 1A has the least impacts to existing habitat and would still increase tidal circulation, and hopefully improve eutrophication and water quality issues. This alternative would result in the mid- and high-marsh habitat, which will likely be beneficial after sea level rise starts to increase rapidly in the next 30 years. Alternative 1 has the least proposed mudflat and open water habitat, which seems like the best option for sea level rise adaptation. Implementing Alternative 1 would provide the greatest adaptive capacity for sea level rise because it would leave the most sediment and
- F-29 |
- F-30 |

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#### **F-15**

The watershed of the lagoon has been irrevocably altered since the 1850s due to development both in the lagoon and watershed. Consequently, a return to historical conditions is not an objective of the restoration project. While the study of historical ecology of the lagoon can educate the design of the project with respect to the historic channel network and maintaining the majority of remaining salt pannes in the east basin for example, salt pannes that occurred throughout the east basin cannot realistically be re-created with the more than 1 mgd of freshwater that is now delivered to the lagoon daily, even during dry weather flows. The regional importance of mudflat habitat has been well documented (Helmert 1992; USFWS 2001). For example, the recently released *Wetlands of the Southern California Coast: Historical Extent and Change Over Time* by the Southern California Coast Water Research Project concludes that, while vegetated wetlands have suffered the greatest loss in terms of area, unvegetated wetlands, such as mudflat, have suffered the greatest proportional loss. Given the difficulty in re-creating historic salt pannes and documented losses in unvegetated wetland habitats, the need for restoration of mudflat is supported. Additionally, the study titled *Shorebirds and Benthic Fauna of Tidal Mudflats in Estero de Punta Banda, Baja California, Mexico* (Maimoe-Celorro and Mellink 2003) states that “Intertidal mudflats are the most important feeding habitats for shorebirds on their migratory routes.” Restoration of mudflat habitat would provide important foraging ground for resident and migrant shorebirds and provide for a diverse assemblage of habitats, a stated restoration goal for San Elijo Lagoon. Additional discussion has been added to the EIR/EIS to support the discussion of proposed habitats for the SELRP.

#### **F-16**

See Response to Comment F-15 for a discussion of mudflat habitat. The intent of the project is not to return San Elijo Lagoon to a condition matching a historic time period, but rather to create habitats appropriate for the project and provide a balanced habitat distribution of both vegetated and unvegetated intertidal habitat types. Specific habitat distribution and balance has been designed with a focus on the specific needs of the species within San Elijo Lagoon.

#### **F-17**

See Response to Comment F-15 for a discussion of the importance of mudflat habitat in the ecological function of the lagoon.

#### **F-18**

Increasing salt marsh coverage within the central basin is not a project objective; rather project objectives focus on providing a gradient of habitats in a distribution that emphasizes heterogeneity and habitat balance. Within San Elijo Lagoon, there are site specific conditions that would benefit from removing some of the emerging salt marsh and replacing it with unvegetated tidal mudflats to achieve this objective, as well as water quality objectives of the project. For example, historic accumulation of nutrients within lagoon sediments currently lead to water quality issues, and removal of those sediments is a key component of the SELRP to increase water quality within the lagoon and address the 303(d) listing status of the lagoon. In addition, conversion of large areas to vegetated salt marsh (particularly dense patches growing in high nutrient sediments) not only inhibits circulation in the lagoon basin, which is key to maintaining water quality, but also diminishes the balance of nesting and foraging habitat for sensitive species within the lagoon.

**F-19**

This text has been revised in Chapter 1 of the Final EIR/EIS, as well as additional locations in the document, as appropriate. The revisions clarify the intent of the comment that without the SELRP, mudflats would be diminished, affecting the balance of suitable foraging and nesting habitats. The purpose of the SELRP is to enhance and restore wetland functions and services at the lagoon level rather than being focused on specific habitat types. Specific goals and objectives focus not only on biological goals, such as providing a gradient of habitats and a balanced habitat distribution of both vegetated and unvegetated intertidal habitat types, but also physical and management goals and objectives.

**F-20**

See Response to Comment F-9. Additional discussion regarding existing water quality conditions within the lagoon has been added to Chapters 1 and 2 as appropriate.

**F-21**

While it is true that sediment chemistry would be modified with removal of sediments, an objective of the project is to reduce the nutrient load in the sediment, which has historically caused eutrophication. In addition, the soils within proposed mudflat areas would be either native soils lowered slightly in elevation or soils slurried from the shallow excavation of the lagoon basins and placed as a cap on the proposed overdredge pit in the central basin. In both cases, the exposed mudflat soils would consist of native marsh. Additional discussion has been added to Chapter 2 clarifying the impact of construction methods on soil characteristics.

**F-22**

See Response to Comment A-5 above.

**F-23**

See Response to Comment A-5 above for clarification on the restoration of habitats within 5–10 years. Regarding the comment that biological communities recover within 1–2 years, the only reference in the EIR/EIS to this rapid recovery is in relation to benthic invertebrate recovery during sand placement. References cited for this comment include NRC 1995; Greene 2002; and SAIC 2007b.

**F-24**

The SELRP construction methodology would utilize a combination of low-pressure earth-moving equipment and/or dredge equipment to remove soils within wetland areas of the lagoon. This construction approach minimizes compaction of wetland soils, which can affect their ability to support wetland vegetation and invertebrate communities after restoration. Soils within proposed mudflat areas would be either native soils lowered slightly in elevation or soils slurried from the shallow excavation of the east basin and placed as a cap on the proposed overdredge pit in the central basin. In both cases, the exposed mudflat soils would consist of native marsh soils that contain native infauna that should serve as seed for a diverse benthic assemblage. Based on monitoring of Batiquitos and San Dieguito Lagoons following restoration, recolonization occurs within 1 to 2 years; however, a high degree of physical variation occurs. Additional discussion has been added to Chapter 2 clarifying the impact of construction methods on soil characteristics.



**F-25**

See Response to Comment A-6.

**F-26**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**F-27**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**F-28**

It is correct that Alternative 1A would have the least impact to existing habitat; relatively, it would also create the least improvement with respect to eutrophication and water quality issues.

**F-29**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**F-30**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

F-30  
cont.

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tidal elevations intact. If large amounts of sediment are dredged out and removed from the Lagoon, we reduce our opportunities to adapt to sea level rise in the future, because we won't be putting this sediment back to keep pace with sea level rise. Alternative 1 would allow incremental adaption to sea level rise based on a scientific monitoring and adaptive management plan. Also consider an investigation of protecting and restoring the salt flats in the east basin to be used as bird nesting, and perhaps consider removing the dike as part of this alternative.

Table 2-18 (page 2-47): Could the NCTD and Coast Highway bridges be widened to the width that the new bridges for Alternative 2A would be? Even if this bridge width is not needed for maximum water flow, wider bridges would reduce tidal constrictions and allow for a more dynamic system.

Page 2-94: based on prior experience at the South SD Bay salt ponds, if the material is pumped into the nesting area, it does not need to be sculpted with bulldozers.

Page 2-1 makes reference to historical ecological conditions varying dramatically in response to long-term wet and dry precipitation cycles. Please explain this comment.

#### General

F-36

Please include a discussion about the *North San Diego County Lagoons Historical Ecology Study* (San Francisco Estuary Institute, in press). This is an important source of information that can help inform lagoon restoration and management. It provides information on recent historical conditions of the Lagoon that occurred while the lagoon was in its current tidal regime.

F-37

Page 2-22: Please include an analysis of the Coastal Commission's sea level rise guidance. It is available here: <http://www.coastal.ca.gov/climate/SLRguidance.html>

F-38

We believe that salt panne are the small unvegetated areas within the salt marsh, whereas salt flat is a habitat type that is dry and salt in the dry season and flooded with freshwater in the rainy season. The habitat that historically existed in the lagoon, which we could consider restoring, is salt flat.

F-39

Page 3.4-2: the McLaughlin 2010 reference is missing from the Literature Cited.

F-40

We suggest developing a Scientific Advisory Committee for the project. A group of scientific experts representing various scientific disciplines could help provide additional insights on the proposed design and the monitoring and adaptation plan.

F-41

Thank you for the opportunity to comment on this document. We look forward to continue to work together to achieve our common objective or restoring San Elijo Lagoon.

Sincerely,

(via email)

Megan Cooper  
Project Analyst

Cc: Doug Gibson

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#### **F-31**

See Response to Comment A-20 and Response to Comment C-24. Removal of sediment from the lagoon would decrease elevations within the lagoon post-restoration to increase habitat heterogeneity, water quality, and lagoon function in the near term. Although sedimentation into the future is not anticipated to maintain pace with sea level rise, project habitat distributions shown in Table P-7 and Section 3.16 reflect continued habitat heterogeneity into the future. Shallow grading/dredging throughout the lagoon basins included in Alternatives 1B and 1B-Refined provide a balance between addressing water quality and increasing biological functions and services in the lagoon. Under a scenario without shallow grading/dredging in the central basin, such as Alternative 1A, water quality and eutrophication concerns in the lagoon would not be addressed to the extent of the other alternatives.

#### **F-32**

See Response to Comment A-3 and A-12. Alternative 1B – Refined is identified as the Preliminary LEDPA; that alternative has been modified to maintain and protect salt pannes in the east basin. If Alternative 1A is confirmed as the Final LEDPA, changes such as removal of the dike could be incorporated into the project as part of the Corps' final permit decision.

#### **F-33**

Hydraulic analyses completed for the project quantified the appropriate channel widths and depths under bridges to convey tidal and storm flow, while minimizing erosion (Appendix D). Channel dimensions were also reevaluated in the Bridge Optimization Study prepared for the three bridges at San Elijo Lagoon (M&N 2012a). That study confirmed channel dimensions needed under bridges to facilitate habitat distribution and tide and flood conveyance. Bridges were then designed to span those channels, taking into consideration sea level rise projections. The studies showed no need to widen channels under bridges further; increases in channel width beyond hydraulic needs could lead to increased habitat impacts and require greater costs, without improving hydraulics and flood conveyance. Therefore, bridges at Highway 101 and the railroad do not need to be lengthened for Alternatives 1A and 1B.

#### **F-34**

The EIR/EIS identifies the potential need to even out the surface of the nesting area. Consultation with the USFWS regarding site selection by nesting colonial seabirds in the south San Diego Bay Salt Works, such as various species of terns, has indicated that line-of-sight is a critical element; even a small obstruction can result in site abandonment. The sediment composition of the nesting area for the SELRP would be primarily sand, which may not settle in an even, flat plain but may settle as mounds when pumped as slurry. Should the slurry settle evenly, no sculpting would be required. Language has been added to Chapter 2 to clarify the potential need to provide additional sculpting at the nesting area.

#### **F-35**

This statement within the EIR/EIS references recent history (1935–1980), in which historical ecological conditions of the lagoon varied dramatically in response to long-term wet and dry precipitation cycles, as well as inlet management. San Elijo Lagoon, like other San Diego County lagoons and estuaries, enjoyed a relatively benign period approximately 35 years prior to the late

1970s (Zedler and Nordby 1986; Zedler et al. 1991). Examination of streamflow in the Tijuana River and precipitation records indicates that studies of the Tijuana Estuary during that period showed that fishes and invertebrates typical of marine-dominated systems flourished and recreational clamming was common. This benign period ended in 1978 and 1980 when El Niño conditions resulted in heavy rainfall and major flooding. In January and February of 1980, floods that exceeded previous streamflow records simultaneously scoured and filled different parts of the estuary. Similar events transformed San Elijo Lagoon (Nordby 1990, unpublished). Winter storms resulted in inlet closure and sedimentation, impoundment of freshwater, and loss of marine-dominated fauna. Prior to the creation of the San Elijo Lagoon Conservancy and active management of the inlet, these events resulted in repeated cycles of degradation and changes in ecological conditions.

**F-36**

A discussion of the recently published *North San Diego County Lagoon Historical Ecology Study* has been included in Section 2.1.2

**F-37**

A discussion of the California Coastal Commission's sea level rise guidance has been incorporated into Section 3.16 Global Climate Change and Greenhouse Gas Emissions.

**F-38**

See Response to Comment F-15. The EIR/EIS considers salt pannes to be upper intertidal areas that are devoid of vegetation. Salt pannes accumulate winter rainfall and saline water from high spring tides in December through February; in summer, they are covered by a salt crust that forms with evaporation of salt spray and tidal water from high spring tides in May through July. Soil salinities of 200 ppt are common at the end of the dry season. Two contrasting communities can thus be found; during the winter aquatic phase, algae flourish and aquatic insects become abundant and during the summer dry phase, the habitat appears barren, because most of the resident insects and other arthropods live in the soil (Zedler 1982).

The intent of the restoration project is not to restore or re-create the lagoon to a certain or specific historic condition, but rather to improve the lagoon's declining condition to a healthy and well-functioning hydraulic and ecologic system that can be maintained through adaptive management. As part of that objective, existing sensitive habitats, including salt pannes, are proposed to be retained to the extent feasible within each of the alternatives, while providing a balanced habitat distribution throughout the lagoon.

**F-39**

The McLaughlin 2010 reference has been added to Chapter 9 Literature Cited of the EIR/EIS.

**F-40**

The suggestion to develop a scientific advisory committee is noted. The SELRP and alternatives have been developed and designed over many years with input and oversight from federal, state, and local agencies; stakeholders; interested organizations, and public citizens.

**F-41**

The comment provides closing statements and is noted.

## DEPARTMENT OF TRANSPORTATION

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September 26, 2014

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Carlsbad, CA 92008

Dear Ms. Hamilton and Ms. Bantilan-Smith:

**G-1** This letter is in response to the Public Notice of the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the San Elijo Lagoon Restoration project. The Department of Transportation (Caltrans) appreciates the opportunity to provide comments on this well written document. The restoration of the lagoon could serve as a possible mitigation opportunity under the North Coast Corridor Public Works Plan (PWP/TREP) adopted by the California Coastal Commission in August of 2014.

**G-2**

**G-3** Caltrans values the close collaboration the lagoon restoration project team has had with both Caltrans engineers and environmental staff, San Diego Association of Governments (SANDAG), San Elijo Lagoon Conservancy and various stakeholders to ensure that the I-5 North Coast Corridor (NCC) project and widening of the I-5 Bridge over San Elijo Lagoon are designed to specifications necessary for lagoon restoration. This close collaboration is the essence of SB 468 (Kehoe) which desired to bring all these efforts affecting the lagoon into one collaborative process. It is with this history of collaboration that the following comments on the draft EIR/EIS are provided. We hope they will serve to promote the development of a robust final EIR/EIS.

**G-1**

The comment provides opening statements; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**G-2**

Inclusion of the SELRP as part of the North Coast Corridor Project Public Works Plan/Transportation and Resource Enhancement Program (PWP/TREP) is documented in Section 1.5 of the EIR/EIS.

**G-3**

The County and Corps concur with the importance of close collaboration between the development of this project, the double-tracking project, and the I-5 North Coast Corridor project per the Kehoe bill (SD 468).

General Comments

G-4 Section 2.10 (Construction Methods, Schedule, and Project Design Feature) of the EIR/EIS assumes concurrent construction with infrastructure improvements to Interstate 5 and the LOSSAN rail double tracking. The EIR/EIS should acknowledge that the infrastructure improvements will be constructed under a Construction Manager/General Contractor (CM/GC) approach. The CM/GC approach is a way to provide a project delivery method that allows an owner to engage a construction manager during the design process to provide input on construction efficiency to reduce duplication of efforts and result in an overall cost saving. The EIR/EIS correctly states that these projects are independent with their own environmental review; however, the EIR/EIS should recognize that if the lagoon restoration precedes during the same timeline as the infrastructure improvements, the restoration project should be included in the CM/GC approach. This may modify the construction approach identified in the EIR/EIS and should be noted.

G-5 The restoration of the San Elijo Lagoon is an opportunity as identified in the North Coast Corridor Public Works Plan. As such Caltrans is very eager to work with your agencies to help determine the Preferred Project under CEQA and the least damaging practical alternative (LEDPA) under the U.S. Army Corps of Engineers process. While the EIR/EIS will identify the potential environmental consequences of the lagoon restoration project, the Preferred Project and LEDPA need to take into consideration the construction and maintenance costs, duration of construction and maintenance, as well as the impacts to the environment. The final EIR/EIS should include either as an appendix or separate document, the process for determining the Preferred Project and LEDPA that a reader can see how the decisions were made and on what basis. A cost-benefit analysis should be included.

Specific Comments on EIR/EIS

- G-6 1. Page 1-18. Table 1-3. No mention of SANDAG and coordination on railroad bridge project.
- G-7 2. Page 2-7. The studies completed for the SELRP omits the "*San Elijo Lagoon Bridge Optimization Study*" which was critical in establishing the channel widths for both the highway and railroad bridges. This study should be cited and used accordingly.
- G-8 3. Page 2-22. Third cell down. The impacts of the railroad are not addressed in the EIR/EIS even though the proposed project (alternative 2A) cannot be built without a new mid-lagoon bridge, and Alternatives 1A and 1B both require wider channel widths under existing Bridge 240.0. None of the alternatives considered are feasible without improvements to the railroad; therefore, these improvements need to be considered under cumulative effects or addressed directly in the appropriate section of the EIR/EIS.
- G-9 4. Page 2-28. Table 2-7 identifies the invert for the Railroad trestle for Alternative 2A as -7 feet NGVD. In the Optimization Studies done for I-5 an invert depth of -15 feet NGVD was identified. Why is there a difference in this channel depth?

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**G-4**

A statement has been added to Section 2.10 that the I-5 and LOSSAN infrastructure projects would be constructed under a Construction Manager/General Contractor (CM/GC) approach. The CM/GC approach is a contractual mechanism to provide coordination between multiple projects for implementation, and inclusion of detailed contract methods is not necessary for the analysis of an environmental document. The CM/GC would address schedule, phasing, work areas, sharing resources, etc., per the collaboration called for by the Kehoe bill (SB 468).

**G-5**

The preliminary LEDPA has been identified as Alternative 1B-Refined in the Draft 404(b)(1) Alternatives Analysis, included in this Final EIR/EIS as Appendix O. The 404(b)(1) Alternatives Analysis discusses the process by which the LEDPA has been determined. The final LEDPA will be identified in the Final 404(b)(1) Alternatives Analysis and in the Record of Decision issued by the Corps. A cost-benefit analysis is not included, as "the Corps shall not prepare a cost-benefit analysis for projects requiring a Corps permit (33 CFR Part 325, Appendix B 9.b.(5)(d))." However, the 404(b)(1) Alternative Analysis does indicate cost considerations that are relevant to the decision.

**G-6**

Table 1-3 lists the required permits or approvals necessary to implement the SELRP. Coordination efforts are not included in this table; however, a discussion of coordination with the I-5 and LOSSAN infrastructure projects relative to the Kehoe Bill is included in Section 1.5 of the EIR/EIS.

**G-7**

The *San Elijo Lagoon Bridge Optimization Study* has been added to the list of studies in Section 2.1.4 of the EIR/EIS.

**G-8**

As shown in Table 5-1, Cumulative Projects List, the rail corridor improvements, including wider channels passing under the existing Bridge 240.0 and the mid-lagoon bridge that would be constructed as part of the LOSSAN double-tracking project, have been considered as part of the cumulative analysis in the EIR/EIS. Additionally, where specific topic areas would have impacts directly affecting the rail corridor, those impacts are identified. For example, in Section 3.5 Geology/Soils, the need for armoring of bridge footings to minimize scour and erosion potential at the new I-5 bridge and NCTD bridge is specifically discussed and identified.

**G-9**

The EIR/EIS has been corrected to show the channel invert under the railroad bridge to be -15 feet NAVD.

- G-10 5. Figure 2-15. This figure shows Site #8 as a staging area with parking. This is within the construction area for the I-5 NCC Project and would most likely be unavailable for use, unless construction at I-5 is completed or has not begun when the lagoon restoration work is ongoing.
- G-11 6. Figures 2-16 and 2-17 and Tables 21 and 22 show a dike on the western side of I-5 in Phase 3 to flood the eastern basin. Depending on the stage of I-5 Bridge construction, the I-5 NCC Project would likely want the dike on the eastern side of I-5 to facilitate our bridge construction. In addition, Caltrans permit requirements for Essential Fish Habitat (EFH) require the channel or portions of to remain open during construction.
- G-12 7. Page 2-58, last paragraph. Recommend providing a figure showing dredge operations, especially routing of dredged material pipeline and booster pumps. Will need to coordinate with Caltrans if dredge is planning to move under I-5 Bridge. There may be a potential conflict with dredge operation and highway construction.
- G-13 8. Page 2-89 and 2-91. This section also describes construction access from Santa Ynez and along the utility road where construction will be ongoing for the I-5 construction, and therefore, may not be available.
- G-14 9. Page 2-92. Staging Areas listed include I-5 and LOSSAN shared right of way areas. During construction of the I-5 NCC Project and likely the double-tracking project through the lagoon, these areas will probably be in use for construction and any shared use would have to be heavily coordinated.
- G-15 10. Page 2-95. The document states that riprap would wrap around the base of each bridge abutment and extend at least 100 feet upstream and downstream. Then under each alternative, the document states that existing infrastructure that will be replaced/modified by others (I-5 and railroad) would incorporate appropriate protection into design. These could be very different from what is described above. Riprap along Manchester on the northern edge of the lagoon does extend more than 100 feet upstream and downstream of the I-5 Bridge, but the southern abutment wraps around to fill and the distance that requires riprap will be determined by Caltrans Design Standards.
- G-16 11. Page 2-97. What are the dimensions and clearances of the haul road specified in paragraph 3?
- G-17 12. Page 2-103. Schedule. Does the schedule for LOSSAN double-tracking or the I-5 NCC Project at San Elijo Lagoon matter to the project and what are the anticipated overlaps. Would the overlapping construction projects potentially slow down or speed up the restoration project? The other schedules should at least be mentioned.
- G-18 13. Page 2-112. PDF-31 says Alternative 2B it should be 2A.
- G-19 14. Page 2.11.3 – Bank Protection Repair. Caltrans has its own bridge inspection requirements and triggers for maintenance. However, it would be helpful if the lagoon restoration noticed a problem to let Caltrans know of damage to channel armor that is observed.
- G-20 15. Page 3.1-1. Land Use/Recreation. There is no mention of the existing bike path under Manchester within this section. In addition, there is no mention of the fiber connection to LOSSAN.
- G-21
- G-22

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#### G-10

See Response to Comment G-4. The EIR/EIS has been modified to indicate that Site #8 is only conditionally available if work on the I-5 bridge replacement project has not been initiated or has already been completed. Shared access may also be appropriate as part of the coordinated CM/GC approach anticipated for implementation of the SELRP.

#### G-11

The specific location and timing of dike construction and removal under I-5 will be determined in coordination with Caltrans and wildlife and permitting agencies during the final design phase. See Response to Comment G-4.

#### G-12

See Response to Comment G-4. The CM/GC approach would ensure each project is implemented in compliance with permit and mitigation requirements.

#### G-13

The EIR/EIS has been modified to show a graphic of the dredge operations and discharge lines and booster pumps. See Response to Comment G-4. Movement of the dredge under I-5 will be coordinated with Caltrans. The dredge could potentially be remobilized and launched in the east basin from site #9 if necessary to avoid activities at I-5.

#### G-14

The EIR/EIS has been modified to indicate that access to the site from Santa Ynez and the utility road east of I-5 is only conditionally available if work on the I-5 bridge replacement project has not been initiated or has already been completed. Shared access may also be appropriate as part of the coordinated CM/GC approach anticipated for implementation of the SELRP.

#### G-15

The EIR/EIS has been modified to indicate that access and staging at rights-of-ways to I-5 and the railroad may not be available and would require close coordination if they were proposed. Response to Comment G-4 identifies the CM/GC approach that has been identified for facilitating coordination between projects in the lagoon.

#### G-16

Distances included in the EIR/EIS are intended to provide a conservative assumption for environmental analysis, but it is anticipated that refinements to bank protection would continue to be made through the permitting and final engineering design phase of the project. The EIR/EIS has been modified to indicate that final design of bank protection at bridge infrastructure will be completed by the owners according to their design guidelines and standards.

#### G-17

For Alternative 2A, the haul road would allow trucks sufficient clearance to move under the new railroad bridge. Final dimensions and elevations for the road would occur during coordination with SANDAG's rail engineers during the permitting and final design phase of the project.



Ms. Megan Hamilton and Ms. Meris Bantilan-Smith  
September 26, 2014  
Page 4

- G-23 | 16. Page 5-5. I-5 NCC Project. The PWP/TREP was approved by the California Coastal Commission in August 2014.
- G-24 | 17. Page 5-7. Caltrans/SANDAG are also proposing more restoration at San Dieguito Lagoon. We are proposing to create 50+ acres of salt marsh and 15+ acres of freshwater marsh suitable for light-footed clapper rail for mitigation for the NCC and the El Camino Real Bridge Project. This restoration work should begin construction in 2017. The environmental documents are to be released in 2015/2016.
- G-25 | We appreciate the opportunity to comment on the referenced EIR/EIS and look forward to collaborating on this project in the future. Questions regarding this letter and further coordination on these issues should be directed to Kim Smith at (619) 688-0220 or [Kim.T.Smith@dot.ca.gov](mailto:Kim.T.Smith@dot.ca.gov).

Sincerely,



BRUCE L. APRIL  
Deputy District Director, Environmental

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#### G-18

The schedule for the SELRP is independent of the schedules for the I-5 and railroad projects, but the projects can also be implemented concurrently if the schedules appropriately coincide. See Response to Comment G-4; it is anticipated that the three projects would be implemented through a CM/GC contracting mechanism to facilitate coordination between them. The CM/GC would address schedule, phasing, work areas, sharing resources, etc., per the collaboration called for by the Kehoe bill (SB 468).

#### G-19

The typo in PDF-38 has been corrected.

#### G-20

PDF-30 has been modified to include notification of utility and infrastructure owners if maintenance needs for agency owned structures are identified during SELRP monitoring activities.

#### G-21

Portions of Manchester Avenue north of the lagoon are striped for bike lines; reference to this facility has been added to the existing recreational uses discussion of Section 3.1.

#### G-22

Reference to the proposed fiber-optic connection between I-5 and the LOSSAN railroad corridor has been added to the EIR/EIS.

#### G-23

The reference to the PWP/TREP has been updated in the cumulative projects table in Chapter 5; no additional cumulative impacts have been identified as a result of the update.

#### G-24

Additional restoration activities at San Dieguito Lagoon, referred to as the San Dieguito Lagoon W-19 Restoration Project (NOP released 8/27/14), as described in the comment have been added to Table 5-1.

#### G-25

The comment provides closing statements and no response is required.

**CALIFORNIA STATE LANDS COMMISSION**  
100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825-8202



*Established in 1938*

JENNIFER LUCCHESI, Executive Officer  
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from Voice Phone 1-800-735-2922

Contact Phone: (916) 574-1890  
Contact FAX: (916) 574-1885

September 29, 2014

File Ref: SCH #2011111013

Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

**Subject: Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for  
the San Elijo Lagoon Restoration Project, San Diego County**

Dear Ms. Hamilton:

H-1

The California State Lands Commission (CSLC) staff has reviewed the subject EIR/EIS for the San Elijo Lagoon Restoration Project (Project), which is being prepared by the County of San Diego Department of Parks and Recreation (County). The County, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the United States Army Corps of Engineers (USACE) is the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The CSLC is a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. Additionally, because the Project involves work on sovereign lands, the CSLC will act as a responsible agency.

H-2

**CSLC Jurisdiction and Public Trust Lands**

H-3

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State

**H-1**

The comment provides introductory statements and no response is required.

**H-2**

The California State Lands Commission's (CSLC) role as a CEQA responsible party and trustee agency is acknowledged. CSLC is included in the listing of responsible and trustee agencies in Section 1.3 of the EIS.

**H-3**

The CSLC jurisdiction and management authority as defined in the comment is acknowledged.

H-3  
cont.

for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

H-4

Based on CSLC staff's review of the information provided in the EIR/EIS as well as in-house records and maps, it appears that the proposed activities at San Elijo Lagoon, Escondido Creek, and La Orilla Creek will involve lands under the direct jurisdiction of the CSLC. A lease will be required for any restoration activities occurring on sovereign land. A copy of the lease application is available on the CSLC website at:

[http://www.slc.ca.gov/Online\\_Forms/LMDApplication/Lease\\_App\\_Form\\_2011.pdf](http://www.slc.ca.gov/Online_Forms/LMDApplication/Lease_App_Form_2011.pdf). Please note that existing leases are located within the proposed Project area: Lease No. PRC 5953.9 has been issued to the County of San Diego and the California Department of Fish and Wildlife for a regional park and wildlife sanctuary within the east basin of San Elijo Lagoon, and Lease No. PRC 7365.9 has been issued to the California Department of Parks and Recreation for an underwater park in the Pacific Ocean.

This determination is without prejudice to any future assertion of State ownership or public rights, should circumstances change, or should additional information come to our attention. In addition, this letter is not intended, nor should it be construed as, a waiver or limitation of any right, title, or interest of the State of California in any lands under its jurisdiction. Please contact Randy Collins (see contact information below) for further information about the extent of the CSLC's sovereign ownership and leasing requirements.

#### **Project Description**

The County and USACE propose to reconfigure the San Elijo lagoon to meet the agencies' restoration objectives and needs as follows:

- Physical restoration of the lagoon's estuarine hydrologic functions;
- Biological restoration of habitat and species within the lagoon;
- Management and maintenance to ensure long-term viability of the restoration efforts; and
- Maintenance of recreational and educational opportunities in the lagoon.

H-5

From the Project Description, CSLC staff understands that the Project would include the following components:

- Dredging and Grading. Dredging and grading would be used to reconfigure the lagoon to create a diverse mosaic of habitats that remain resilient through time.
- Inlet Modifications. Modifications to the existing lagoon inlet would occur to enhance tidal flow in and out of the lagoon, and internal lagoon modifications would occur to increase the tidal prism and rate of water transfer between the ocean and the lagoon.
- Infrastructure Improvements. A bridge on Coast Highway 101 would be retrofitted or reconstructed over the inlet of the lagoon, as necessary. The County and USACE anticipate that the retrofit work would be implemented by others, however, the design and environmental analysis is included in the Project EIR/EIS.

#### **H-4**

Section 1.4 and Table 1-3 of the EIR/EIS identify the requirement for CSLC to issue a lease to the San Elijo Lagoon Conservancy for activities below the mean high tide line, including dredging in the lagoon and for materials disposal/reuse of excavated materials.

#### **H-5**

The County and Corps serve as the lead agencies under CEQA and NEPA, respectively, and are not the project proponent. The San Elijo Lagoon Conservancy is the project proponent and would be the agency implementing the project, once approved. The comment summarizes project elements as described in the EIR/EIS; it does not raise a specific issue related to the adequacy of the EIR. Therefore no specific response is provided.

- H-5  
cont.
- Sediment Disposal. Sediments dredged during lagoon restoration would be disposed at locations identified for materials disposal and reuse including offshore placement sites, nearshore areas, nearby beaches, and on-site placement.
  - Revegetation. After dredging and filling activities within the lagoon are complete, a combination of targeted planting and natural recruitment would occur on the restoration site to ensure that wetland habitats are properly established.

The Draft EIR/EIS identifies alternative 1A as the Environmentally Superior Alternative, but also discloses that because alternative 1A includes reduced dredging and restoration activity, the environmental benefits would also be less than for other Project alternatives. Specifically, alternative 1A does not achieve physical restoration of the lagoon hydrologic functions or biological restoration of habitat and species within the lagoon.

#### Environmental Review

CSLC staff requests that the County and USACE consider the following comments on the Project's EIR/EIS.

#### Biological Resources

- H-6
- H-7
1. Invasive Species: The EIR/EIS considers the potential for invasive plant species to occur in areas of disturbance during the Project, and the applicant has proposed invasive plant removal in restored areas. In addition to considering invasive plant spread and control in the Project area, please consider invasive species from the perspective of aquatic organisms. The use of barges and other in-water equipment in the lagoon may transport and establish invasive coastal flora and fauna in the restoration area via hull fouling and disturbance. The EIR/EIS should consider a range of options to slow the introduction of invasive species into the restoration area, including preparing an aquatic invasive species prevention program, which contains measures for quarantine, early detection, and early response. In addition, consider hiring dredging barges from nearby, or requiring hull cleaning prior to dredging in the lagoon.

#### Cultural Resources

- H-8
- H-9
2. Title to Resources: The EIR/EIS should mention that the title to all abandoned archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. CSLC staff requests that the County and USACE consult with Assistant Chief Counsel Pam Griggs (see contact information below) should any cultural resources on state lands be discovered during construction of the proposed Project.

#### Global Climate Change

- H-10
3. Sea Level Rise: A tremendous amount of state owned lands and resources under the Commission's jurisdiction will be impacted by rising sea levels. Because of their nature and location, these lands and resources are already vulnerable to a range of natural events, such as storms and extreme high tides. The State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for state decision-makers as part of continuing efforts to prepare for climate

#### H-6

Additional language has been added to Section 3.6 to clarify measures that would be required for dredges working in the lagoon as described below. These procedures are typically required by permitting agencies to minimize the potential to introduce aquatic invasive species into new sites. PDF-15, in Table 2-26, has been modified to include these project design features.

It is proposed that the dredge equipment be visually inspected prior to use for evidence of soils or other material that might contain invasive species. The dredge history should also be provided to ascertain if the equipment has been involved in work within areas known to contain invasive species. If the equipment has not previously worked in areas with known invasive species, or the site was cleared of invasive species prior to starting work, no additional quarantine or sterilization would be necessary.

If the dredge has worked in areas of known invasive species, the amount of decontamination/sterilization would depend on the type of species and the disposition of the dredge/excavation equipment. For example, if the equipment was working in an area of waterborne species and had been above water for a long enough period of time that the species could not survive, no additional quarantine would be necessary. Additional requirements may be included as part of the permitting negotiation process.

#### H-7

See Response to Comment H-6.

#### H-8

As requested, a statement has been added in Section 3.7 that the title to cultural resources on tidal or submerged lands is under the jurisdiction of the CSLC.

#### H-9

As requested, the CSLC Assistant Chief Counsel will be informed if cultural resources on state lands are discovered. This contact will also be included in the distribution list for project-related cultural resource documentation. This notification requirement has been added to mitigation measure Cultural-1.

#### H-10

The discussion of the SELRP's consistency with sea level rise guidance and recommendations in the California Climate Adaptation Strategy (Safeguarding Plan) is noted. The comment does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.



H-10  
cont.

risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations for state decision-makers. CSLC staff believes the goals of the Project are consistent with the guidance and recommendations presented in the Safeguarding Plan, and that results of the lagoon restoration will create a more resilient shoreline and minimize adverse ecosystem impacts resulting from sea level rise. The maps of projected habitat distribution in the Climate Change section of the EIR/EIS are effective tools for disclosing the changes that would occur in the lagoon with sea level rise. In addition to the maps, consider adding Habitat Distribution Comparison Tables, similar to table ES-1, in the Climate Change section showing the amount of existing habitat type, the amount of habitat type after implementation of the Project, and the amount of habitat type in 2065 with sea level rise, for each alternative.

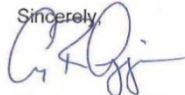
H-12

Thank you for the opportunity to comment on the EIR/EIS for the Project. As a responsible and trustee agency, the CSLC will need to rely on the Final EIR/EIS for the issuance of any new lease as specified above and, therefore, we request that you consider our comments prior to certification of the EIR/EIS.

H-13

Please send copies of future Project-related documents, including electronic copies of the Final EIR/EIS, Mitigation Monitoring and Reporting Program (MMRP), Notice of Determination (NOD), CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at [Holly.Wyer@slc.ca.gov](mailto:Holly.Wyer@slc.ca.gov). For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Assistant Chief Counsel Pam Griggs at (916) 574-1854 or via email at [Pamela.Griggs@slc.ca.gov](mailto:Pamela.Griggs@slc.ca.gov). For questions concerning CSLC leasing jurisdiction, please contact Randy Collins, Public Land Management Specialist, at (916) 574-0900, or via email at [Randy.Collins@slc.ca.gov](mailto:Randy.Collins@slc.ca.gov).

Sincerely,



Cy R. Oggins, Chief  
Division of Environmental Planning  
and Management

cc: Office of Planning and Research  
R. Collins, LMD, CSLC  
H. Wyer, DEPM, CSLC  
K. Colson, Legal, CSLC

**H-11**

As discussed in Response to Comment A-20, Tables P-7 and 3.16-8 have been added to the EIR/EIS to provide additional discussion of anticipated habitat distributions under the predicted sea level rise scenario, but this distribution accounts for only one variable in climate change and is relatively speculative.

**H-12**

The comment provides closing statements and no response is required.

**H-13**

The comment is noted. As requested, the CSLC contact information will be included in the SELRP distribution list.



EDMUND G. BROWN JR.  
GOVERNOR

STATE OF CALIFORNIA  
GOVERNOR'S OFFICE of PLANNING AND RESEARCH  
STATE CLEARINGHOUSE AND PLANNING UNIT



KEN ALEX  
DIRECTOR

September 30, 2014

Megan Hamilton  
San Diego County Department of Parks and Recreation  
5500 Overland Avenue  
Suite 410  
San Diego, CA 92123

Subject: San Elijo Lagoon Restoration Project (SELRP)  
SCH#: 2011111013

Dear Megan Hamilton:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on September 29, 2014, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan  
Director, State Clearinghouse

Enclosures

cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044  
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

**I-1**

The comment provides information related to the project's compliance with the State Clearinghouse review requirements for draft environmental documents. No response is required.

**Document Details Report  
State Clearinghouse Data Base**

<b>SCH#</b>	2011111013		
<b>Project Title</b>	San Elijo Lagoon Restoration Project (SELRP)		
<b>Lead Agency</b>	San Diego County		

---

<b>Type</b>	EIR	Draft EIR
<b>Description</b>	Note: Extended Per Lead	

The project is the San Elijo Lagoon Restoration Project (SELRP or project). The project is located in the southernmost portion of the city of Encinitas. San Elijo Lagoon is a coastal wetland formed where Escondido and La Orilla creeks meet the Pacific Ocean. The lagoon provides habitat for sensitive, threatened, and endangered plants and animals, including resident and migratory wildlife. There are also public recreational opportunities within the San Elijo Lagoon Ecological Reserve, including more than 7 miles of hiking trails.

---

**Lead Agency Contact**

<b>Name</b>	Megan Hamilton		
<b>Agency</b>	San Diego County Department of Parks and Recreation		
<b>Phone</b>	858 966 1377	<b>Fax</b>	
<b>email</b>			
<b>Address</b>	5500 Overland Avenue		
	Suite 410		
<b>City</b>	San Diego	<b>State</b>	CA <b>Zip</b> 92123

---

**Project Location**

<b>County</b>	San Diego		
<b>City</b>	San Diego		
<b>Region</b>			
<b>Lat / Long</b>	33° 01' 19.99" N / 117° 16' 57.9" W		
<b>Cross Streets</b>	Southern boundary of City of Encinitas adjacent to Solana Beach		
<b>Parcel No.</b>			
<b>Township</b>	<b>Range</b>	<b>Section</b>	<b>Base</b>

---

**Proximity to:**

<b>Highways</b>	I-5
<b>Airports</b>	
<b>Railways</b>	NCTD, Coaster/Amtrak
<b>Waterways</b>	San Elijo Lagoon, Escondido Creek, La Orilla Creek
<b>Schools</b>	multiple
<b>Land Use</b>	Ecological Reserve/Open Space

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**Project Issues**    Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Drainage/Absorption; Economics/Jobs; Flood Plain/Flooding; Geologic/Seismic; Minerals; Noise; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wetland/Riparian; Landuse; Cumulative Effects; Other Issues

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**Reviewing Agencies**    Resources Agency; Department of Boating and Waterways; California Coastal Commission; Department of Fish and Wildlife, Region 5; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 11; Air Resources Board; Regional Water Quality Control Board, Region 9; Native American Heritage Commission; Public Utilities Commission; State Lands Commission

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**Date Received**    07/30/2014    **Start of Review**    07/30/2014    **End of Review**    09/29/2014

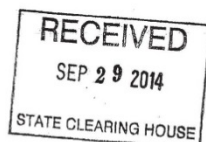
I-1  
cont.





State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
South Coast Region  
3883 Ruffin Road  
San Diego, CA 92123  
(858) 467-4201  
www.wildlife.ca.gov

EDMUND G. BROWN, JR., Governor  
CHARLTON H. BONHAM, Director



September 29, 2014

Ms. Lorrie Bradley  
County of San Diego Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123  
lorrie.bradley@sdcounty.ca.gov

Ms. Meris Bantilan-Smith  
U.S. Army Corps of Engineers, Los Angeles District, Regulatory Division  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008  
Meris.Bantilan-Smith@usace.army.mil

**Subject: Comments on the Draft Environmental Impact Report/Environmental Impact Statement for the San Elijo Lagoon Restoration Project (SCH# 2011111013)**

Dear Ms. Bantilan-Smith and Ms. Bradley:

The Department of Fish and Wildlife (Department) has reviewed the above-referenced Draft Environmental Impact Report/Draft Environmental Impact Statement (DEIR/DEIS) for the San Elijo Lagoon Restoration Project (Project) dated July 2014. The Department has identified potential effects of this Project on wildlife and sensitive habitats. The comments provided herein are based on the information provided in the DEIR/DEIS, a site visit on August 14, 2014, and our knowledge of sensitive and declining habitats.

The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (§§ 15386 and 15281, respectively) and is responsible for ensuring appropriate conservation of the state's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act (CESA; Fish and Game Code § 2050 et seq.) and Fish and Game Code Section 1600 et seq.

The Department also administers the Natural Community Conservation Planning program. The Project is within the Multiple Habitat Conservation Program (MHCP), a comprehensive conservation planning process that addresses the needs of multiple plant and animal species in Northwestern San Diego County. However, the subarea plans which would include San Elijo Lagoon have not completed the permit process and therefore would not cover take of listed species by the Project.

The proposed Project consists of restoring the San Elijo Lagoon with improved ecological function. The Project would reconfigure lagoon elevations through grading and dredging, and

## I-2

This comment includes the letter received by the State Clearinghouse from the California Department of Fish and Wildlife. This letter was also sent directly to and received by the CEQA and NEPA lead agencies and has been fully responded to as Letter D.

*Conserving California's Wildlife Since 1870*

Ms. Lorrie Bradley  
Ms. Meris Bantilan-Smith  
September 29, 2014  
Page 2 of 7

modify water flow into the lagoon through improved channels to achieve an enhanced distribution of habitat types, including transitional habitat to increase the resiliency of the lagoon to predicted sea level rise. The DEIR/DEIS also includes descriptions of changes to existing infrastructure such as widening of Interstate 5 freeway and replacement of the bridge over San

Elijo lagoon, bridge construction and/or retrofitting of Coast Highway 101, and double tracking of the North County Transit District (NCTD) railway which passes through the lagoon. With the exception of Coast Highway 101, modifications of the structures are separate projects that have provided environmental review and analysis of those modifications in other documents (SCH# 2010111006/SCH# 2004101076). This Project is also addressed in the North Coastal Corridor Public Works Plan/Transportation Resource and Enhancement Plan (NCC PWP/TREP), approved by the California Coastal Commission on August 13, 2014.

Design features and mitigation measures have been added to the Project to avoid or reduce potential environmental impacts. Sensitive biological resources in the vicinity of the Project are associated with the native terrestrial and aquatic habitats of the Escondido and La Orilla Creeks. Sensitive species located within or directly adjacent to the Project limits that may be adversely affected include CESA-listed and Endangered Species Act (ESA)-listed plant and animal species. Among the species which may be affected are: California least tern (*Sterna antillarum browni*), western snowy plover (*Charadrius alexandrinus nivosus*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) and salt marsh bird's beak (*Chloropyron maritimum ssp. maritimum*).

The Department provides the following specific comments and recommendations to assist the Army Corps of Engineers and the County of San Diego Department of Parks and Recreation in avoiding or minimizing potential impacts to marine life and habitats, sensitive native plants, wildlife, and vegetation communities identified in the DEIR/DEIS:

#### Marine Life and Habitat Impacts

##### Cardiff and Moonlight Sediment Disposal Locations:

The proposed Cardiff and Moonlight beach sediment placement sites and the SO-6 borrow site are within the Swami's State Marine Conservation Area (SMCA). The Department is concerned about the large volumes of sediment proposed for the Cardiff sediment placement site that would cause direct adverse burial and scour impacts to marine biological resources within the intertidal and subtidal.

The Department is concerned that if the proposed disposal volumes for either alternative 2A or 1B are deposited on the Cardiff sediment placement location there could be temporary or long term adverse impacts to rocky reefs, kelp, surfgrass, and established cobble habitat which could also negatively affect local fisheries. The increased risk of adverse impacts is supported by the high sediment disposal volumes proposed for Cardiff (800,000 cubic yards for Alternative 2A and 600,000 cubic yards for Alternative 1B) when compared with the 101,000 cubic yards placed at Cardiff during the 2001 Regional Beach Sand Project (RBSP I). These proposed alternative volumes are 6 to 8 times higher than the volumes placed and studied during RBSP I.

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Additionally, the intertidal and shallow subtidal sandy bottom (benthic/epibenthic forage base) and the marine life community that utilizes this habitat could be significantly impacted. This habitat within the Cardiff sediment placement location is important to fish and bird foraging, the local fisheries and for marine biodiversity. The benthic invertebrate forage base is essential for healthy fish assemblages and for shorebirds. The large volumes of sand proposed with Alternative 2A and 1B would have permanent direct burial impacts on a large area of the forage base which may have a long-term impact on fish and shorebird assemblages and the local recreational fishery (Manning et al. 2013).

#### Torrey Pines and Leucadia Sediment Placement Locations:

Pismo clams (*Tivela stultorum*) exist at the Torrey Pines and Leucadia deposition sites. As reported in the DEIR/DEIS, small numbers of juvenile Pismo clams were found in the last beach surveys conducted in 2009. Pismo clams are a long lived, low fecundity species which makes them more sensitive and vulnerable to burial, bulldozing/grading and sedimentation impacts. The Department is concerned that Pismo clams and their habitat could be adversely impacted by the Project.

#### All Sediment Placement Locations:

Impacts to long lived, low fecundity, locally rare invertebrate species in open coast habitats are vulnerable to local extirpations from permanent and ongoing burial, sedimentation and bulldozing/grading. These species could take decades to re-establish in a disturbed sediment placement site. Smaller volumes of sediment placed with low slopes, thinner layers and with refuge areas (areas left unfilled) could reduce the potential adverse impacts and reduce the recovery time for these species (Schlacher et al. 2012, Hubbard et al. 2013).

The proposed dredging equipment, pipes and anchors that would be used to dredge and transfer sediments to the disposal locations have the potential to disturb (noise, lights and turbidity) seabirds, and cause significant direct damage (crushing or gouging) to marine life.

A potential for California grunion (*Leuresthes tenuis*) spawning activity may exist for some of the sediment placement locations. This species is considered vulnerable because their spawning behaviors and egg nest areas are sensitive to lights, turbidity, bulldozing and burial during the grunion spawning seasons between March and August.

The Pacific Coast Western snowy plover (*Charadrius nivosus nivosus*) is federally listed as threatened and is a California species of special concern. There is nesting activity and critical habitat near the Torrey Pines sediment placement site, and potential foraging and roosting habitat in other sediment placement locations. The Department is concerned that Western snowy plovers could be harmed during construction and bulldozing at the sediment placement locations.

Another upcoming project (Encinitas/Solana Beach Shoreline Protection project) proposes to dredge within borrow pits SO-5 and SO-6 and place sand onshore in the Cities of Encinitas and Solana Beach. The Department recommends consideration of a strategy to combine portions of the Encinitas/Solana Beach and the San Elijo Lagoon Dredging projects in a coordinated fashion. Potentially, the Army Corps could receive sediments for their future Encinitas/Solana Beach project by obtaining it from the proposed San Elijo Lagoon Project dredging phase.

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Ms. Lorrie Bradley  
Ms. Meris Bantilan-Smith  
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Dredging/filling of SO-6 and/or placement of large quantities of sediments at the Cardiff sediment placement site could be avoided with this strategy. Both projects could avoid marine resource and water quality impacts related to dredging, transferring (pipes to/from the borrow pits), and placing sediments on beaches. This strategy is supported by the Department for avoiding or significantly minimizing impacts within Swami's SMCA.

#### Recommendations

##### Cardiff Location:

- Avoidance - The temporary and adverse marine impacts to Swami's SMCA could be avoided by using the Encinitas/Solana Beach project placement footprints (if feasible), instead of the Cardiff beach site or SO-6.
- Minimization - Bulldozing impacts to benthic invertebrates as well as burial impacts to subtidal rocky reefs, kelp, and seagrasses could be minimized by using one or more of the following methods:
  - a) Place no more than the maximum sediment volume previously placed in this location by the 2001 RBSP I project (101,000 cubic yards) or other reduced volume so that the majority goes in the shallow subtidal, avoiding rock or cobble fields, in order to avoid impacts to the forage base. Lesser volumes could go in the intertidal (thin layer) allowing for natural sediment distribution along shore to avoid or minimize bulldozing impacts.
  - b) Reduce and split the proposed nearshore sediment placement volumes and time the split placements over a two year span (or more).
  - c) Reduce the Cardiff or SO-6 sediment placement volume by placing additional amounts in the SO-5 nearshore borrow pit, if necessary.
- Monitoring - Sediment volumes previously placed and studied (101,000 cubic yards during the 2001 RBSP I project) may not need comprehensive baseline biological surveys. If volumes over 101,000 cubic yards are placed, then a comprehensive baseline biological survey and a "before and after construction" monitoring program is recommended. In this case, an agency approved impact monitoring and mitigation plan should be developed for any anticipated or potential adverse biological impacts. The updated baseline survey and reports should quantify and summarize potential adverse or temporary habitat/species impacts in terms of estimated species numbers and habitat area that may be lost or degraded from burial, scour, turbidity, high sloped and thick layer beach berms, unnaturally fine or coarse sand, and bulldozing. Locally or regionally sensitive, long-lived, unique and rare species and their habitats should be a priority in the survey program. Species and habitats vulnerable to cumulative sand replenishment projects and synergistic anthropogenic impacts should also be a priority. Estimates of the impacted area of forage base, fish assemblages, and recreational fishing should also be included.

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#### Swami's State Marine Conservation Area

In order to protect marine resources within the Swami's SMCA and to comply with the specific laws and regulations pertinent to the Swami's SMCA, the Department recommends that the impacts to the intertidal/subtidal forage base and subtidal rocky habitat from any chosen alternatives be avoided or minimized to a less than significant level. This could include reduced sediment placement at the Cardiff site and the nearshore borrow pit SO-6 (~30 feet mean sea level) within Swami's SMCA. Additional dredged lagoon sediments could be placed (to the extent feasible) in the beach locations for the upcoming Encinitas/Solana Beach Shoreline Protection project, rather than placing large sediment volumes at Cardiff and SO-6.

#### Pismo Clams

Updated, appropriate Pismo clam surveys should be conducted within the Torrey Pines and Leucadia sediment placement footprint prior to construction. Direct impacts to Pismo clam juveniles or adults should be avoided or minimized during construction. Department approved protection plans should be developed for locations where this species is found.

#### All Sediment Placement Locations:

- In order to reduce potential adverse impacts, enhance recovery of the food web, and minimize impacts to local fishing:
  - a) Place smaller volumes of sediment at a time.
  - b) Design beaches with low slopes, thin sand layers and natural grain sizes.
  - c) Leave some areas unfilled (refuge areas).
- Dredging and pipe route locations, sediment placement timing, and start locations should be carefully selected to avoid or minimize disturbances to fisheries, sensitive or listed species, fish/bird foraging habitats, and to avoid nesting/spawning seasons where appropriate.
- Survey/protection plans should be developed (Department approved) for each particular sediment placement site. This should include protections for the beach ecosystem (including kelp wrack), seabirds, Western snowy plover, Pismo clams and California grunion as appropriate. Protection plan goals should be to protect and minimize impacts to the sandy intertidal benthic forage base and shallow subtidal food web, as well as protect bird breeding and fish spawning from dredging, burial, noise, lighting, turbidity and construction vehicles.

#### Sensitive Native Plants, Habitat and Wildlife Impacts

##### Rare, Threatened and Endangered Plant Species

Rare, threatened and endangered plant seed collection for management purposes would require a Research Permit (Fish and Game Code (FGC) § 2080) if no impacts to listed plants

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occur from the Project, however a CESA incidental take permit would be required if plants or wildlife would be taken by Project activities.

#### Threatened and Endangered Wildlife Species

The Department has been involved in the planning process for the Project, and appreciates the efforts that have been made to consider various methods and careful timing of the Project elements to prevent any incidental mortality of threatened or endangered species. The Department recommends that all avoidance and proactive measures described in the document to prevent take of CESA and ESA listed wildlife species be implemented as part of the Project. As noted in the DEIR/DEIS, no mortality of light-footed Ridgway's rail is allowed (FGC § 3511(b)(9)). Additionally, take of California least tern or Belding's savannah sparrow is prohibited under CESA unless authorized by the Department.

#### Salt Marsh Habitat

The Department is concerned that under Alternative 2A, wave energy from the ocean would continue down the new entrance channel into the western basin, and would likely cause erosion similar to that found at Batiquitos Lagoon, impacting salt marsh within San Elijo Lagoon's western basin. This may require the use of erosion control along the shoreline to protect existing infrastructure (i.e. NCTD Railroad and Coast Highway 101). Although the wave energy is minor, it is generally sufficient at Batiquitos to erode fine sediments and loose soils as the tides move up and down shorelines, which has caused slope failure and loss of salt marsh within that basin.

The proposed disposal pit for the fine sediments will likely have subsidence over time as those sediments consolidate, which could affect the development of the target salt marsh habitat type. The Project should consider what amount of subsidence is likely in determining the as-built elevations of the sand cap for the disposal pit. Additionally, the Batiquitos Lagoon 1997 restoration project utilized "wicks" to help consolidate the sediments more quickly. The Department recommends that this or other techniques which may help accelerate the consolidation process be utilized if practicable.

#### Nesting Site

Overhead power lines adjacent to the nesting site have potential to provide perches for predators of California least terns and Western snowy plovers. The Department recommends that deterrents to roosting (e.g. "bird spikes") be installed to reduce the likelihood of predation, or if practicable, removing/undergrounding of the power lines as a preferred method to reduce the potential predator perch.

#### General Comments

The Project should only use erosion and sediment control measures such as fiber rolls and erosion control blankets that utilize biodegradable materials such as jute instead of plastic mesh, to avoid potential plastics pollution hazards to wildlife.

The Department is concerned about the cost of maintaining a permanent opening through dredging which would be required under Alternative 2A as we anticipate the costs of lagoon

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maintenance may become excessive, as they have at both Batiquitos and Bolsa Chica wetland restoration projects. Should the Project select Alternative 2A, we recommend the funding mechanism for lagoon maintenance be established to the satisfaction of permitting agencies prior to implementation.

We appreciate the opportunity to comment on the referenced DEIR/DEIS. Questions regarding this letter and further coordination on these issues should be directed to Tim Dillingham at (858) 467-4250 or email at [Tim.Dillingham@wildlife.ca.gov](mailto:Tim.Dillingham@wildlife.ca.gov) or for marine/sediment disposal issues to Loni Adams at (858) 627-3985 or email at [Loni.Adams@wildlife.ca.gov](mailto:Loni.Adams@wildlife.ca.gov).

Sincerely,



Gail K. Sevens  
Environmental Program Manager  
South Coast Region

cc: Sally Brown (USFWS)  
Scott Morgan (State Clearinghouse)

#### Citations

Hubbard, D.M., et al. 2013. Local extirpations and regional declines of endemic upper beach invertebrates in southern California, *Estuarine, Coastal and Shelf Science*, 1-9. (<http://dx.doi.org/10.1016/j.ecss.2013.06.017>)

Manning, L.M., et al. 2013. Degradation of Surf-Fish Foraging Habitat Driven by Persistent Sedimentological Modifications Caused by Beach Nourishment, *Bulletin of Marine Science*, 89(1):83-106. (<http://dx.doi.org/10.5343/bms.2012.1005>)

Schlacher, T.A., et al. 2012. The effects of beach nourishment on benthic invertebrates in eastern Australia: Impacts and variable recovery, *Science of the Total Environment*, P 411-417.

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cont.



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100 Howe Avenue, Suite 100-South  
Sacramento, CA 95825-8202



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September 29, 2014

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SEP 29 2014

STATE CLEARING HOUSE

File Ref: SCH #2011111013

Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

**Subject: Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the San Elijo Lagoon Restoration Project, San Diego County**

Dear Ms. Hamilton:

I-3

The California State Lands Commission (CSLC) staff has reviewed the subject EIR/EIS for the San Elijo Lagoon Restoration Project (Project), which is being prepared by the County of San Diego Department of Parks and Recreation (County). The County, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the United States Army Corps of Engineers (USACE) is the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The CSLC is a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. Additionally, because the Project involves work on sovereign lands, the CSLC will act as a responsible agency.

#### CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State

### I-3

This comment includes the letter received by the State Clearinghouse from the California State Lands Commission. This letter was also sent directly to and received by the CEQA lead agency and has been fully responded to as Letter H.

for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Based on CSLC staff's review of the information provided in the EIR/EIS as well as in-house records and maps, it appears that the proposed activities at San Elijo Lagoon, Escondido Creek, and La Orilla Creek will involve lands under the direct jurisdiction of the CSLC. A lease will be required for any restoration activities occurring on sovereign land. A copy of the lease application is available on the CSLC website at: [http://www.slc.ca.gov/Online\\_Forms/LMDApplication/Lease\\_App\\_Form\\_2011.pdf](http://www.slc.ca.gov/Online_Forms/LMDApplication/Lease_App_Form_2011.pdf). Please note that existing leases are located within the proposed Project area: Lease No. PRC 5953.9 has been issued to the County of San Diego and the California Department of Fish and Wildlife for a regional park and wildlife sanctuary within the east basin of San Elijo Lagoon, and Lease No. PRC 7365.9 has been issued to the California Department of Parks and Recreation for an underwater park in the Pacific Ocean.

I-3  
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This determination is without prejudice to any future assertion of State ownership or public rights, should circumstances change, or should additional information come to our attention. In addition, this letter is not intended, nor should it be construed as, a waiver or limitation of any right, title, or interest of the State of California in any lands under its jurisdiction. Please contact Randy Collins (see contact information below) for further information about the extent of the CSLC's sovereign ownership and leasing requirements.

#### Project Description

The County and USACE propose to reconfigure the San Elijo lagoon to meet the agencies' restoration objectives and needs as follows:

- Physical restoration of the lagoon's estuarine hydrologic functions;
- Biological restoration of habitat and species within the lagoon;
- Management and maintenance to ensure long-term viability of the restoration efforts; and
- Maintenance of recreational and educational opportunities in the lagoon.

From the Project Description, CSLC staff understands that the Project would include the following components:

- Dredging and Grading. Dredging and grading would be used to reconfigure the lagoon to create a diverse mosaic of habitats that remain resilient through time.
- Inlet Modifications. Modifications to the existing lagoon inlet would occur to enhance tidal flow in and out of the lagoon, and internal lagoon modifications would occur to increase the tidal prism and rate of water transfer between the ocean and the lagoon.
- Infrastructure Improvements. A bridge on Coast Highway 101 would be retrofitted or reconstructed over the inlet of the lagoon, as necessary. The County and USACE anticipate that the retrofit work would be implemented by others, however, the design and environmental analysis is included in the Project EIR/EIS.

- Sediment Disposal. Sediments dredged during lagoon restoration would be disposed at locations identified for materials disposal and reuse including offshore placement sites, nearshore areas, nearby beaches, and on-site placement.
- Revegetation. After dredging and filling activities within the lagoon are complete, a combination of targeted planting and natural recruitment would occur on the restoration site to ensure that wetland habitats are properly established.

The Draft EIR/EIS identifies alternative 1A as the Environmentally Superior Alternative, but also discloses that because alternative 1A includes reduced dredging and restoration activity, the environmental benefits would also be less than for other Project alternatives. Specifically, alternative 1A does not achieve physical restoration of the lagoon hydrologic functions or biological restoration of habitat and species within the lagoon.

#### Environmental Review

CSLC staff requests that the County and USACE consider the following comments on the Project's EIR/EIS.

#### Biological Resources

1. Invasive Species: The EIR/EIS considers the potential for invasive plant species to occur in areas of disturbance during the Project, and the applicant has proposed invasive plant removal in restored areas. In addition to considering invasive plant spread and control in the Project area, please consider invasive species from the perspective of aquatic organisms. The use of barges and other in-water equipment in the lagoon may transport and establish invasive coastal flora and fauna in the restoration area via hull fouling and disturbance. The EIR/EIS should consider a range of options to slow the introduction of invasive species into the restoration area, including preparing an aquatic invasive species prevention program, which contains measures for quarantine, early detection, and early response. In addition, consider hiring dredging barges from nearby, or requiring hull cleaning prior to dredging in the lagoon.

#### Cultural Resources

2. Title to Resources: The EIR/EIS should mention that the title to all abandoned archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the CSLC. CSLC staff requests that the County and USACE consult with Assistant Chief Counsel Pam Griggs (see contact information below) should any cultural resources on state lands be discovered during construction of the proposed Project.

#### Global Climate Change

3. Sea Level Rise: A tremendous amount of state owned lands and resources under the Commission's jurisdiction will be impacted by rising sea levels. Because of their nature and location, these lands and resources are already vulnerable to a range of natural events, such as storms and extreme high tides. The State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for state decision-makers as part of continuing efforts to prepare for climate

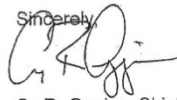
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risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations for state decision-makers. CSLC staff believes the goals of the Project are consistent with the guidance and recommendations presented in the Safeguarding Plan, and that results of the lagoon restoration will create a more resilient shoreline and minimize adverse ecosystem impacts resulting from sea level rise. The maps of projected habitat distribution in the Climate Change section of the EIR/EIS are effective tools for disclosing the changes that would occur in the lagoon with sea level rise. In addition to the maps, consider adding Habitat Distribution Comparison Tables, similar to table ES-1, in the Climate Change section showing the amount of existing habitat type, the amount of habitat type after implementation of the Project, and the amount of habitat type in 2065 with sea level rise, for each alternative.

Thank you for the opportunity to comment on the EIR/EIS for the Project. As a responsible and trustee agency, the CSLC will need to rely on the Final EIR/EIS for the issuance of any new lease as specified above and, therefore, we request that you consider our comments prior to certification of the EIR/EIS.

Please send copies of future Project-related documents, including electronic copies of the Final EIR/EIS, Mitigation Monitoring and Reporting Program (MMRP), Notice of Determination (NOD), CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at [Holly.Wyer@slc.ca.gov](mailto:Holly.Wyer@slc.ca.gov). For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Assistant Chief Counsel Pam Griggs at (916) 574-1854 or via email at [Pamela.Griggs@slc.ca.gov](mailto:Pamela.Griggs@slc.ca.gov). For questions concerning CSLC leasing jurisdiction, please contact Randy Collins, Public Land Management Specialist, at (916) 574-0900, or via email at [Randy.Collins@slc.ca.gov](mailto:Randy.Collins@slc.ca.gov).

Sincerely,



Cy R. Oggins, Chief  
Division of Environmental Planning  
and Management

cc: Office of Planning and Research  
R. Collins, LMD, CSLC  
H. Wyer, DEPM, CSLC  
K. Colson, Legal, CSLC

I-3  
cont.





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September 24, 2014

File Number 1200201

Ms. Megan Hamilton  
California Environmental Quality Act Contact  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

Dear Ms. Hamilton:

SUBJECT: Comments on San Elijo Lagoon Environmental Impact Report/Environmental Impact Statement

This letter is in response to the Public Notice of the draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the proposed San Elijo Lagoon Restoration Project. The San Diego Association of Governments (SANDAG) has a long history of promoting regional conservation and habitat restoration efforts. The restoration of the lagoon implements both the Multiple Habitat Conservation Plan that SANDAG prepared and approved in 2003, and could serve as a possible mitigation opportunity under the North Coast Corridor Public Works Plan approved by the California Coastal Commission in August 2014.

While promoting regional conservation efforts, SANDAG also serves as the regional transportation planning agency with responsibility for implementing some regional infrastructure, including the development of light and heavy rail. As you are aware, SANDAG is designing the San Elijo Lagoon Double Track Project (SELDT) that crosses the proposed lagoon restoration area within the North County Transit District (NCTD) Right-of-Way (ROW). SANDAG values the close collaboration the lagoon restoration project team has had with both the SANDAG rail engineers, as well as the engineers from Caltrans who will be constructing improvements on Interstate 5 (I-5). This close collaboration is the essence of Senate Bill 468 (Kehoe, 2011), which desired to bring all these efforts affecting the lagoon into one collaborative process. It is with this spirit of collaboration that the following comments on the draft EIR/EIS are provided for consideration as you prepare the final EIR/EIS.

#### General Comments

Section 2.10 (construction methods, schedule, and project design feature) of the EIR/EIS assumes concurrent construction with infrastructure improvements including I-5 and SELDT. The EIR/EIS should acknowledge that the infrastructure improvements will be constructed under a Construction Manager/General Contractor (CM/GC) approach. The CM/GC approach is a way to provide project delivery method that allows an owner to engage a construction manager during the design process to provide input on

#### J-1

The comment provides introductory statements and notes the SELRP's inclusion in the North Coast Corridor PWP. No response is required.

#### J-2

SANDAG is included in the listing of responsible and trustee agencies in Section 1.3 of the EIR/EIS. The County and Corps concur with the importance of close collaboration between the development of this project, the double-tracking project, and the I-5 North Coast Corridor project per the Kehoe bill (SB 468).

#### J-3

A statement has been added to Section 2.10 regarding construction of the I-5 and railroad infrastructure projects under a CM/GC approach. The CM/GM approach is a contractual mechanism for project implementation and inclusion of detailed contract methods is not necessary for the analysis of an environmental document. See Response to Comment G-4.

#### J-4

At present, the schedules of the projects indicate the railroad project as initiated in July 2015, followed by I-5, and the SELRP in January of 2016. See Response to Comment G-4. With implementation of the CM/GC, coordination would occur between the projects, including sequencing of construction activities.

#### J-5

See Response to Comment J-4. As currently scheduled, the timing of the railroad project precedes the SELRP sufficiently to prevent the condition of the berm being scoured by tidal flows.

#### J-6

See Response to Comment J-4. The current timing of the railroad project would precede the SELRP sufficiently to prevent the condition of the berm being overtopped by storm flows from occurring. Please note that modeling done for the SELRP and for Caltrans in the Bridge Optimization Study (M&N 2012a) does not show the existing railroad berm being overtopped by storm flows. The railroad berm reaches up to 13 feet above NGVD (1928 mean sea level), and 100-year flood flows would reach 9.5 feet NGVD for Alternatives 1A and 1B, and would drop lower for Alternative 2A.

MEMBER AGENCIES  
Cities of  
Carlsbad  
Chula Vista  
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Metropolitan  
Transit System  
North County  
Transit District  
United States  
Department of Defense  
San Diego  
Unified Port District  
J-3  
San Diego County  
Water Authority  
Southern California  
Tribal Chairmen's Association  
Mexico

J-3 cont.	construction efficiency to reduce duplication of efforts and result in an overall cost saving. The EIR/EIS correctly states that these projects are independent with their own environmental review; however, the EIR/EIS should recognize that, if the lagoon restoration proceeds during the same timeline as the infrastructure improvements, the restoration project should be included in the CM/GC approach. This may modify the construction approach as identified in the EIR/EIS and should be noted.
J-4	The construction phasing for the three projects (SELRP, I-5 improvements, and SELDT) is critical. There is a concern that increased tidal flow will increase scour at the existing 240.4 bridge. Any work within the lagoon that increases tidal flows under the bridge must not occur until the existing bridge is replaced with a new, modern railroad bridge structure designed to withstand foreseeable scour. Likewise, the railroad embankment through the lagoon must also be protected/replaced before the embankment is exposed to increased tidal flows. Another concern is any increase in fluvial flows related to work upstream of the railroad berm/bridge. The current berm would be overtopped by flood waters associated with a 100-year storm event. Any work that increases the potential for fluvial flows before the new railroad bridge and berm are built has the potential to impact current railroad service through the lagoon, and therefore within San Diego County. We believe that mitigation for these concerns can be adequately addressed in the EIR/EIS by adding a Project Design Feature (PDF) that recognizes the need for construction phasing to protect existing railroad infrastructure across the lagoon during construction. We believe these concerns require the railroad improvements (new bridge and armored embankment) be in place before work that increases tidal flows and the potential for fluvial flows within the lagoon occurs. This can be resolved by inclusion of the project into the existing CM/GC proposed for the SELDT and I-5.
J-5	
J-6	
J-7	
J-8	
J-9	
J-10	The restoration of the San Elijo Lagoon is an opportunity as identified in the North Coast Corridor Public Works Plan. As such, SANDAG is eager to work with your agencies to help determine the preferred project under California Environmental Quality Act and the Least Environmentally Damaging Practicable Alternative (LEDPA) under the United States Army Corps of Engineers (USACE) process. While the EIR/EIS will identify the potential environmental consequences of the lagoon restoration project, the preferred project and LEDPA need to take into consideration the construction and maintenance costs, duration of construction and maintenance, as well as the impacts to the environment.
J-11	Based upon the EIR/EIS and the SANDAG analysis for the SELDT, it appears that the LEDPA, and thus the preferred project alternative is 1B. The biggest drivers in this determination are the construction and maintenance cost associated with the alternatives, and their associated environmental impacts. The proposed project would require the elevation of the SELDT railroad to be raised up to 16 feet creating permanent visual impacts. Alternative 2A also would result in an increase of 1.1 acres of permanent wetlands impacts over alternative 1B, and construction costs for SELDT would increase by \$33 million. For these reasons, we do not believe alternative 2A is practicable or feasible.
J-12	
J-13	The final EIR/EIS should include either as an appendix or separate standalone document, the process for determining the preferred project and LEDPA in a transparent manner that a reader can see how the decisions were made and on what basis. A cost-benefit analysis also should be included.
J-14	
J-15	Finally, SANDAG is aware of the desire to connect the existing lagoon trail system under the railroad to the gateway property to the west. This would require permission from NCTD and may require subsequent environmental review.

#### J-7

See Response to Comment J-4. PDF-32 in the EIR/EIS has been modified to require phasing and timing to minimize impacts to the railroad during construction. That PDF may not be necessary if the projects are implemented with the timing presently anticipated and with close coordination as part of the CM/GC effort, but it could address a scenario that deviates from the anticipated project timeline.

#### J-8

See Responses to Comments J-4 through J-7.

#### J-9

See Response to Comment J-4.

#### J-10

See Response to Comment G-5.

#### J-11

See Response to Comment G-5. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### J-12

The preliminary LEDPA is identified as Alternative 1B-Refined in the Draft 404(b)(1) Alternatives Analysis, included in this Final EIR/EIS as Appendix O. The final LEDPA will be identified in the Record of Decision issued by the Corps. Alternative 2A would require that the railroad be elevated compared to existing conditions; however, under Alternative 1B-Refined, no increase in the railroad would be required to accommodate the SELRP. The EIR/EIS for LOSSAN (SCH 2002031067) did not identify a significant visual impact associated with the proposed double-tracking project through San Elijo Lagoon.

#### J-13

See Response to Comment G-5.

#### J-14

A cost-benefit analysis is not included, as "the Corps shall not prepare a cost-benefit analysis for projects requiring a Corps permit (33 CFR Part 325, Appendix B 9.b.(5)(d)). However, the 404(b)(1) Alternative Analysis does indicate any cost considerations that are relevant to the decision.

#### J-15

See Response to Comment C-21. The SELRP does not propose a trail connection under the railroad and concurs that this would be a separate project requiring permission from NCTD and appropriate environmental review.

*Specific Comments on EIR/EIS*

J-16	Page ES-12	What is the purpose and need for the existing railroad bridge at Mile Post 240.4 under alternative 2A? Can it be replaced with additional embankment or another water conveyance structure?
J-17	Page ES-12 and throughout the EIR/EIS	The EIR/EIS needs to address the need to protect the railroad embankment, coast highway embankment, and other structures along inlet channel locations from scour through armoring. The SELDT project has analyzed this for the railroad embankment, but the other areas need to be addressed by the EIR/EIS.
J-18	Page 2-7	The discussion of the studies completed for the SELRP omits the "San Elijo Lagoon Bridge Optimization Study," which was critical in establishing the channel widths under the railroad bridge at MP 240.4, the mid-lagoon railroad bridge at MP 240.6 and I-5. This study should be cited and used accordingly.
J-19	Page 2-22	The EIR/EIS states that relies on the 2007 Final Program EIR/EIS for the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency rail for impacts associated with the railroad widening in the lagoon. The latest proposed impact analysis prepared by the SELDT can be obtained from SANDAG directly and used in the EIR/EIS.
J-20	Page 2-28	There is no existing railroad bridge at MP 240.6 that coincides with the proposed project alternative 2A. Consider eliminating existing dimensions to remove confusion or clarify using footnotes.
J-21	Page 2-28	In Table 2-7, footnote 1 clarifies that the existing Coast Highway 101 bridge will remain. Will the 101 bridge be required to be reconstructed due to the need to retrofit the existing structure regardless of the alternative that is selected? No such mention is made for the existing railroad bridge at MP 240.4. Please have the EIR/EIS clarify the status of railroad bridge 240.4 if the mid-lagoon bridge at MP 240.6 is selected.
J-22	Table 2-5, 4th cell down	Creation of nesting and transitional habitats. We understand this area is designated as critical habitat for Western Snowy Plover. Since the double track is being built to the east of the existing track, this EIR/EIS should include a statement that future railroad operations will not adversely affect this area; otherwise, there is a potential adverse impact from the restoration project on the railroad. It is recommended that nesting sites be placed in the lagoon, not alongside it to reduce impacts from predators.
J-23	Table 2-7	Under the proposed project, it is unclear if a bridge or other water conveyance features at the location of the existing bridge 240.4. Please confirm this in the final EIR/EIS.
J-24	2-33, 2nd paragraph	The specific locations that may be dredged and planned dredging depths at each location need to be disclosed.
J-25	Table 2-10 and 2-13	Shows three to five feet of dredging between the 101 bridge and the railroad bridge. Please confirm.

**J-16**

In this EIR/EIS, the existing railroad bridge is anticipated to remain in place under Alternative 2A in order to maintain circulation to the northern channel in the west basin if Alternative 2A is selected. It is anticipated that replacement of the bridge with a different type of crossing or embankment would need to be addressed as part of the LOSSAN permitting process.

**J-17**

The EIR/EIS addresses shore protection required to avoid potential erosion and scour impacts associated with the SELRP, including along Highway 101. Shore protection that the railroad has determined needs replacing as part of their project along the north bank of the tidal entrance channel would be designed to SANDAG standards and is outside the scope of this project.

**J-18**

The comment is correct and the Bridge Optimization Study has been added as a reference in the EIR/EIS.

**J-19**

The Final Program EIR/EIS represents the most recent analysis of LOSSAN available at the time this EIR/EIS was prepared. The SELRP is being analyzed separately from the I-5 North Coast Corridor and double-tracking project, as noted in Chapter 1 of the EIR/EIS, so the analysis is not incorporated into this EIR/EIS, but rather referenced.

**J-20**

Table 2-7 refers to proposed structures in the lagoon under Alternative 2A but does not reference any existing structures.

**J-21**

See Response to Comment J-16.

**J-22**

The nest site would be located within the lagoon and outside of the railroad easement. The lagoon currently provides breeding and foraging habitat for many sensitive bird species, including listed species. While activities may shift with implementation of the SELRP, it is anticipated that the regulatory requirements for operations and maintenance along the railroad would be similar to current conditions and should not affect the ability of SANDAG to operate and maintain the railroad. It is not possible to conclusively state that future railroad operations will not adversely affect this area; it is anticipated that future railroad actions would be evaluated separately based on future conditions.

**J-23**

See Response to Comment J-16.

**J-24**

Maintenance dredging for Alternative 2A would be within the subtidal basin that would be created in the west and central lagoon basins. Clarification has been added to the EIR/EIS to specify this location, which is indicated in Figure 2-12 as "Routine Inlet Maintenance" location.



J-26	Page 2-38 and 2-43	Please provide a map of the extent of inlet dredging proposed for alternatives 1A and 1B.
J-27	Page 2-58, last paragraph	Provide a figure showing dredge operations, especially routing of dredged material pipeline and booster pumps. There is a substantial chance for construction conflicts between the dredging operation and planned railroad construction. This can be resolved efficiently with a CM/GC approach to construction.
J-28	Figure 2-16 and 2-17	Shows the lagoon contractor using the San Diego Gas and Electric (SDG&E) access road SANDAG needs to use to construct the double track project. There is a substantial chance for construction conflicts. This can be resolved efficiently with a CM/GC approach to construction.
J-29	Page 2-58 Construction Approach; Tables 2-21, 2-22, and 2-23	The EIR/EIS should discuss the construction of the railroad and highway widening through the CM/GC process prior to discussion of the alternatives. Since the lagoon restoration is dependent on these infrastructure improvements, it is again urged to discuss, how the lagoon restoration could be incorporated into the CM/GC process and the construction approach addressed for each of the three projects. The tables need to incorporate railroad work even if done by others.
J-30	Page 2-85	All three alternatives propose a permanent dredge launch site at the northern end of the SDG&E access road. With this provided, is there a need for a new mid-lagoon railroad bridge at 240.6 to be built high enough to accommodate dredge passage under the bridge? How high would the proposed mid-lagoon bridge be required for the proposed dredger?
J-31	Page 2-95 - 2-96, 2.10.9	Please clarify the need to maintain an opening at existing bridge 240.4 under the proposed project (alternative 2A).
J-32	Page 2-97	What are the dimensions and clearances of the haul road specified in paragraph three?
J-33	Page 2-100	A barge would be launched into the central basin launch site. With this provided, is there a need for a new mid-lagoon railroad bridge at 240.6 to be built high enough to accommodate dredge passage under the bridge? What is the clearance required under the new mid-lagoon railroad bridge for the proposed dredger?
J-34	Page 2-101 1st full paragraph	Please confirm that in order to maintain the proposed gateway, dredging would have to occur within the railroad ROW. Please provide a map and inverts proposed and dredging locations.
J-35	Page 2-112, PDF 31	Rock protection will also be required along the expanded railroad berm. All rock protection will not simply be "placed directly along the toe....," it will include a subsurface component to properly protect structures. Please revise this text in the EIR/EIS.
J-36	PDF-40	Remove the railroad trestle from the listing of infrastructure improvements to be reviewed by the listed local and state agencies since it is not regulated by the listed agencies.

**J-25**

SANDAG's understanding of the dredge depths between Highway 101 and the railroad bridge is correct.

**J-26**

Inlet maintenance proposed for Alternatives 1A and 1B is in the same general location as existing maintenance, which utilizes land-based equipment rather than dredging. Maintenance would extend from Highway 101 to the channel curve just downstream of the railroad bridge. This area is highlighted with the label "Routine Inlet Maintenance" in Figures 2-13 and 2-14.

**J-27**

See Responses to Comments G-13 and J-3.

**J-28**

See Responses to Comments J-3 and J-4 pertaining to potential conflicts during construction. The schedules may be separated sufficiently to minimize conflicts, and both projects are included in the CM/GC process so coordination can be achieved and maintained.

**J-29**

Chapter 1 identifies the I-5 North Coast Corridor and LOSSAN double-tracking projects as independent projects proposed within the lagoon. A reference to the CM/GC as the anticipated contracting mechanism to implement all three lagoon projects has been added to the EIR/EIS, but there is the potential for the projects to move forward independently depending on timing and the implementing agency. The environmental analyses for the projects remain separate from each other; therefore, tables in the EIR/EIS have not been revised to reflect the separate projects as a single effort. The EIR/EIS has been modified to clearly include the SELRP in the anticipated CM/GC process, if that is determined to be appropriate.

**J-30**

Alternative 2A requires a mid-lagoon railroad bridge for the dredge to gain access to both the west and central basins. Consistent with previous discussions with SANDAG, the mid-lagoon railroad bridge would need to have a soffit elevation of at least +12 feet above NGVD.

**J-31**

See Response to Comment J-16.

**J-32**

See Response to Comment G-17.

**J-33**

See Response to Comment J-30. Alternative 2A requires a mid-lagoon railroad bridge for the dredge to gain access to both the west and central basins, and the mid-lagoon railroad bridge would need to have a soffit elevation of at least +12 feet above NGVD.

J-37	General	The highest high tide elevation was used for USACE limits; however, the Jurisdictional Delineation report for the SELRP does not indicate the elevation or the source of the elevation used. Please indicate the highest high tide elevation (and the source) to confirm the same elevation is being used consistently.
J-38	General	The railroad project recorded and evaluated two additional resources: the former Santa Fe Railroad (CA-SDI-16385H) and a disused railroad berm (P-37-029481) within the SELDT area of potential effects. Impacts to these resources were not anticipated for the SELRP project and no evaluation was completed. The SELRP indicated that eligibility of these resources would be addressed as part of the SELDT project. As part of the railroad project cultural resources evaluation, the three resources within the railroad project footprint (SDI-215/H, SDI-6854H, and SDI-16385), as well as the railroad and bridge 240.4 were recommended not eligible for listing to the National Register of Historic Places, and no adverse effects to historic properties under Section 106 of National Historic Preservation Act were identified. Please include into the appropriate section of the EIR/EIS.
J-39	Page 3.1.2, Existing Land Uses	Please include the railroad ROW as an existing ROW land use and address impacts to the current and planned railroad land use within this section of the joint EIR/EIS. Railroad service must be maintained during construction except as otherwise arranged with NCTD. Note that the railroad has been recognized by the California Coastal Commission as providing coastal access in accordance with the requirements of Chapter 3 of the Coastal Act.
J-40	Section 3.2.3	This section needs to consider increased scour from increases in fluvial and tidal flows, in particular before a new railroad bridge and armored berm is in place. We believe such impacts can be fully mitigated through appropriate construction phasing to protect existing facilities.
J-41	Page 3.3-10, 2nd full paragraph	Any work that increases the potential for tidal or fluvial flows before the new railroad bridge and berm are built has the potential to wash out the current railroad service through the lagoon within San Diego County. We believe this can be adequately addressed in the EIR/EIS by adding a PDF that recognizes the need for construction phasing to protect existing railroad infrastructure with the lagoon during construction. We believe these concerns require the railroad improvements (new bridge and armored embankment) need to be in place before work that increases tidal flows, and the potential for fluvial flows within the lagoon. We believe this is required regardless of the build alternative chosen.

#### J-34

See Response to Comment J-24. Maintenance dredging would occur within the subtidal basin area of both the west and central basins, as well as under the railroad bridge, within the area identified for routine inlet maintenance in Figure 2-12. The depth of dredging would be to the design depth of -15 feet NGVD. Dredge slopes would be 3:1 maximum, and slope from the top of the subtidal basin down to the target depth of -15 feet NGVD. Detailed maintenance dredge design would be developed during the final design phase of the project if Alternative 2A is selected for implementation.

#### J-35

PDF-39 of the EIR/EIS has been modified to indicate that proper design of shore protection will be required in accordance with design standards of the bridge owners.

#### J-36

PDF-50 of the EIR/EIS has been modified to not include the railroad bridge.

#### J-37

The mean higher high water elevation in San Diego is 2.78 feet above MSL. This information has now been added to the jurisdictional delineation report. The Mean Higher High Water line used was that mapped by the Pacific Institute in 2000.

#### J-38

The cultural resource findings from the LOSSAN double-tracking project through the lagoon as provided in the comment have been considered and incorporated as appropriate into Section 3.7 Cultural Resources.

#### J-39

As requested, additional information describing the railroad ROW traversing the lagoon has been included in Section 3.1 Land Use/Recreation. Information has been added to the EIR/EIS section to clarify that railroad operations or the coastal access associated with the railroad service would not be substantially disrupted by the SELRP and railroad service would be maintained throughout construction unless otherwise arranged with NCTD. Potential impacts related to the railroad, such as geologic stability, have been addressed within the appropriate analysis section of the EIR/EIS.

#### J-40

See Responses to Comments J-4 through J-7. PDF-32 in the EIR/EIS has been modified to require phasing and timing to minimize impacts to the railroad during construction, including scour. That PDF may not be necessary if the projects are implemented with the timing presently anticipated and with close coordination as part of the CM/GC effort, but it could address a scenario that deviates from the anticipated project timeline.

#### J-41

See Responses to Comments J-4 through J-7, and J-40.

Thank you for providing SANDAG the opportunity to review the EIR/EIS for the San Elijo Lagoon Restoration Project. If you have any questions, please contact Keith Greer at (619) 699-7390 or keith.greer@sandag.org.

Sincerely,



CHARLES "MUGGS" STOLL  
Director of Land Use and Transportation Planning

CST/KGR/pch

cc: Megan Copper, California Coastal Conservancy  
Doug Gibson, San Elijo Lagoon Conservancy  
Meris Bantilan-Smith, USACE, Los Angeles District



*City of Encinitas*

Planning and Building Department

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September 29, 2014

Ms. Lorrie Bradley  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Ave., Suite 410  
San Diego, CA 92123

**Subject: City Staff Comments on the San Elijo Lagoon Restoration Project Draft EIS/EIR**

Dear Ms. Bradley:

**K-1** | The City of Encinitas appreciates the opportunity to comment on the above-referenced Draft EIS/EIR. Staff's comments are provided as follows:

**Geology/Soils**

**K-2** | Based on a recent seismic vulnerability report (T.Y. Lin International, 11/2011), the existing Coast Highway 101 Bridge was found to be susceptible to collapse during a significant seismic event due to shear failure in the pile extensions beneath the pier wall. The bridge was originally built in 1934 and was subsequently widened on the western side in 1953. By the early 1990s, many of the pile extensions on the original bridge experienced section loss and were no longer supporting the structure. Repairs were made in 1993 to the pile extensions to reinforce the vertical loads, but the extent of the repairs was limited to the original bridge piers (and not any of the widening piers).

The seismic vulnerability report elaborated further that scour compounded with the annual dredging performed by the San Elijo Lagoon Conservancy increases the likelihood of bridge failure during a seismic event. Over time, scour (caused by moving water) can remove supporting sand and rocks and can compromise the integrity of man-made structures. The ongoing dredging results in the exposure of the pile extensions beneath the pier wall repairs. If compounded with localized scour, the geotechnical vertical load capacity is significantly reduced. When these conditions are combined with an earthquake, the pile extensions are prone to structural failure due to axial buckling and out-of-plane loads.

**K-3** | The Draft EIR/EIS acknowledges that the Coast Highway 101 Bridge is seismically deficient, but indicates replacement of the bridge structure would not be necessary since it is expected that it would be retrofitted in the future to meet current seismic safety standards. However, the retrofit work is not proposed by project Alternatives 1A or 1B, which would maintain the lagoon

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**K-1**

The comment provides introductory statements and no response is required.

**K-2**

The bridge is already currently seismically vulnerable, and needs to be retrofitted. The City of Encinitas is responsible for maintaining the bridge, including providing upgrades as necessary. The EIR/EIS analyzes the potential impact of the project alternatives on the existing Highway 101 bridge, including for geologic impacts (Section 3.5). That analysis addresses any potential increase in the exposure of people or structures to adverse effects involving seismically induced ground shaking. No significant or substantial adverse impacts were identified; there are two physical barriers to the depth of scour that can occur under the bridge. Those physical barriers are a cobble armor layer at approximately -2 feet NAVD under the bridge, and a bedrock sill immediately offshore of the bridge that reaches the same elevation of -2 feet NAVD. Both features limit bed scour from the lagoon to -2 feet NAVD. That scour depth is insufficient to cause bridge destabilization and the project would not worsen the existing seismic deficiencies, including ongoing dredging or inlet maintenance, as documented in Moffatt & Nichol (M&N) 2014. Additional language has been added to Section 3.5 to clarify that Alternatives 1B and 1A would not contribute to the existing seismic deficiencies. The SELRP includes seismic retrofit of the bridge under Alternatives 1B and 1A with the understanding that the City of Encinitas or another agency would implement those actions. However, because the project alternatives would not result in a significant impact to the bridge, that retrofit is not identified as a mitigation measure nor would it be required as part of the SELRP. It is anticipated that retrofit actions would continue to be the responsibility of the City of Encinitas.

**K-3**

The seismic retrofit of the existing Highway 101 bridge is not proposed by the SELRP and is assumed to be a project undertaken by others, as noted in the comment. As described in Section 3.5, the channel deepening and proposed protection design would be engineered in accordance with applicable state and federal requirements to avoid an increase in geologic hazards or scour and erosion affecting the Highway 101 bridge, either prior to or after the retrofit of the bridge. Additionally, the EIR/EIS identifies that any bridge work would be required to meet engineering and design requirements to ensure that no significant impacts related to geologic instabilities would result. Similarly, if the retrofit is not completed, there would be no impact to the SELRP because it would not affect the dimensions of the inlet opening. Other potential areas of impact related to the bridge retrofit work, such as traffic impacts, have been disclosed in the appropriate sections of the EIR/EIS. Thus, because the potential for impact from the bridge retrofit is not dependent on specific timing, the scheduling of the bridge retrofit as determined by the implementing agency would not change the environmental conclusions identified in the EIR/EIS.

K-3 cont.	inlet at its current location. The Draft EIR/EIS states that the retrofit work would be "implemented by others". The City has not identified any funding for retrofitting the bridge at this time. If other public agencies will be retrofitting the bridge, they should be identified in the EIS/EIR.
K-4	Section 3.5.3 (pg. 3.5-14) indicates that, for Alternatives 1A and 1B, channels underneath the existing Coast Highway 101 Bridge would require substantial deepening for improved hydraulics and necessitate appropriate design standards and protection. This discussion also indicates that no increase in scour depth would occur under the bridge from the channel deepening. Please clarify if any design standards and protection measures would be implemented beyond the armoring of the abutments and inlet channel.
K-5	In addition, please clarify whether the impact analyses and significance determinations are based upon the current condition of the bridge, which is seismically deficient. In accordance with CEQA, the impact analyses should not assume the bridge will be retrofitted unless funding is programmed or secured by a public agency for such improvements.
K-6	As indicated in the Draft EIR/EIS, project grading plans, associated engineering studies, and Coast Highway 101 bridge plans would be subject to review and approval by the City. As part of this review, the City will need to ensure that the structural integrity of the bridge will not be compromised by the project. This determination cannot be made by staff until such plans and studies are submitted for review.
	<b>Water Quality</b>
K-7	Section 3.4.3 – Environmental Consequences (pgs. 3.4-13 to 3.4-17): With respect to the temporary impacts specific to restoration work, there is little consideration of impacts related to bacterial indicators during construction, including dredging. Notably, the lagoon is currently 303(d) listed for bacteria (in addition to sediment and nutrients). Sediment disturbance during the course of construction will likely result in significant spikes in bacterial concentrations, and resultant beach closures and beneficial use impacts. While the long-term benefits from the restoration efforts would improve water quality conditions, the temporary impacts from bacteria (not only sediment/turbidity as the Draft EIR/EIS includes) should be evaluated and measures proposed to minimize the impacts should be considered.
K-8	Section 3.4.3 – Materials Disposal / Reuse Study Area (pgs. 3.4-24 to 3.4-26): Again, impacts from bacterial indicators on water quality need to be considered. The movement of soil is likely to have farther reaching impacts on water quality than just turbidity and suspended sediment.
	<b>Traffic Circulation</b>
K-9	Section 2.5.2 – Channel and Infrastructure Improvements: Please include a figure similar to Figure 2-5 that portrays staged cross-sections of the existing Coast Highway 101 Bridge during construction/retrofitting activities for Alternatives 1A and 1B.

#### K-4

No protection measures are being proposed or needed under the Highway 101 bridge as part of the SELRP. Channel widening would occur within the existing bridge span, and channel deepening would occur to the point of the existing cobble armor layer and the offshore bedrock sill. As discussed in Section 3.5, the SELRP would not increase existing seismic deficiencies of the bridge and no additional design standards or protection measures would be implemented.

#### K-5

The baseline conditions considered in the EIR/EIS include the current seismically unstable condition of the Highway 101 bridge. The analysis throughout the EIR/EIS shows that work required to implement lagoon restoration under Alternatives 1B and 1A would not worsen or add to the existing seismic instability of the bridge. The significance conclusions of the analysis in the EIR/EIS are not dependent on nor would be changed due to the timing of the necessary bridge retrofit work.

#### K-6

The comment is accurate that the EIR/EIS indicates that engineering plans, studies, and other similar design/engineering documents would be subject to review by the City of Encinitas. The City of Encinitas' approval of such documents would be required before construction could be initiated.

#### K-7

Water quality impacts are evaluated in Section 3.4 of the EIR/EIS and addressed by project design. Grading and/or dredging of the majority of the upper layers of the wetland soils would occur behind diked basins that would contain turbidity and bacteria released into the water column. Therefore, that grading/dredging should not result in a substantially increased release of bacteria to the ocean or subsequent beach closures or beneficial use impacts. Lower sand layers within the lagoon do not contain substantial amounts of bacteria as the sand layers are sequestered beneath the surface and removed from sources. Prior to implementation, the project would obtain a 401 water quality certification from the RWQCB identifying required measures. It is anticipated the project would be required to perform construction monitoring of water quality along the beach and in the nearshore zone during sand placement to document conditions and to take any appropriate corrective actions.

#### K-8

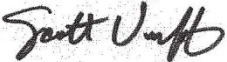
See Response to Comment K-7. The movement of soil during construction is not anticipated to have additional water quality impacts; the comment is not clear what additional impacts could be a concern.

#### K-9

Cross-sections of Highway 101 are not necessary to provide in the EIR/EIS as plan view graphics and the provided discussion are sufficient to evaluate potential environmental impacts of the SELRP on the existing bridge, as well as to provide an evaluation of impacts associated with the anticipated retrofit activities by others. The bridge retrofit component of the project is anticipated to be completed by the City of Encinitas and would be designed and engineered by the City of Encinitas during final approval of that project component.

- K-10 Section 3.10.3 – Environmental Consequences (pgs. 3.10-19 to 3.10-21): With all alternatives, bridge construction activities may decrease the safety for bicyclists and pedestrians. These potential public safety impacts may increase during the summer months. As noted on pages 2-79 and 2-81, bridge construction activity for Alternatives 1A and 1B is expected to last eight months. To further reduce public safety impacts on bicyclists and pedestrians, staff recommends that construction activities for the existing bridge be avoided during the summer months (Memorial Day through Labor Day). This measure should be implemented as a project design feature.
- K-11 Mitigation Measure Traffic-1 (page 3.10-23): This measure should be modified to require submittal of traffic control plans to the City's Public Works Department for review and approval prior to grading permit issuance.
- K-12 Encinitas staff would be happy to meet with you and/or your consultants to review our comments in more detail. Should you have any questions regarding the above comments, please contact me at 760-633-2692.

Sincerely,



Scott Vurbett  
Environmental Project Manager

cc: Jeff Murphy, Planning and Building Department Director  
Glenn Pruim, Public Works Department Director

#### K-10

As stated in Section 3.10, it is likely that the construction schedule of bridge work would overlap with a summer season. Construction timing is dictated by a wide variety of factors and it may not be feasible to fully avoid the peak summer beach season as suggested by the comment. However, Section 3.10 of the EIR/EIS evaluated the potential safety impacts to pedestrian and bicycle facilities and found that the additional ADT added to the roadways during construction would not decrease the performance or safety of such facilities. Additionally, the traffic control plan would require approval from the Cities of Solana Beach and Encinitas, and would include measures to address pedestrian/bicycle access during construction or bridge retrofit activities.

#### K-11

As requested, mitigation measure Traffic-1 has been expanded to specify submittal of the traffic control plans to the City of Encinitas Public Works Department for review and approval.

#### K-12

The comment provides closing statements and no response is required.





## City of Encinitas

September 30, 2014

Ms. Lorrie Bradley  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

RE: Comments on San Elijo Lagoon Restoration Draft EIS/EIR

- L-1 The City of Encinitas (City) appreciates the opportunity to provide comments on the San Elijo Lagoon Restoration Project. The City supports the overall concept of lagoon restoration, which has been designed to increase the tidal prism to restore the physical and biological function and protect the shoreline. Due to shoreline erosion problems, the City has developed a Coastal Program to proactively identify and implement approaches that will enhance local beaches, reduce erosion, protect the public beaches and bluffs and critical infrastructure. In 2001, the City of Encinitas and Solana Beach, along with the US Army Corp of Engineers, began the development of the Coastal Storm Damage Reduction Project and the San Elijo Lagoon Restoration Project. In 2005, the projects were bifurcated and subsequently managed by separate agencies and developed independently. As these individual projects meet major milestones in parallel, it is paramount that they work in compliment to one another to achieve mutual goals and objectives. As such, the City has provided comments below to identify various areas of consideration to better synergize and realize mutual benefits toward overall lagoon and coastline health, function, and protection.

### Sand Placement Locations

- L-3 The Cities of Solana Beach and Encinitas in partnership with the US Army Corps of Engineers Planning Division in Los Angeles, received approval from the California Coastal Commission (CCC) on November 14, 2013 to place 1.4 million cubic yards of sandy material in Leucadia and Solana Beach (<http://documents.coastal.ca.gov/reports/2013/11/7th11a-11-2013.pdf>) In Encinitas, the Leucadia receiver site, in contrast to that described in the EIR, has been redefined to extend from Daphne Street to H Street (See Figure 1). The City would recommend that the newly defined extend of the Leucadia receiver site be included in the EIR.

- L-4 The Batiquitos Receiver Site has been vetted by various permitting agencies through the Regional Beach Sand Project (I & II) and the City of Encinitas Opportunistic Beach Fill Program as an approved beach placement site. As such, the City would recommend that this location be included in the Final EIS/EIR as it relates to the Lagoon Restoration Project.

### Coastal Monitoring Plan

- L-6 The coastal zone is dynamic and unpredictable when it comes to sand volumes from year to year. The offshore natural resources consist of reefs, kelp beds, surfgrass and other natural resources. The proper volume of sand to be placed is determined by waves, past nourishment events, and impacts to habitats. Beach transect data and calibration of predictive modeling would provide a basis for the appropriate volume and placement design at key beaches. The City recommends a beach placement trigger report and monitoring program as part of the Lagoon Restoration effort, to define and determine the volume of sand needed at specific beaches. It will be important to analyze how proposed placement volumes will affect downcoast reefs and surfgrass.

Tel 760/633-2600 FAX 760/633-2627, 505 South Vulcan Avenue, Encinitas, CA 92024 TDD 760/633-2700

### L-1

The comment provides introductory statements and no response is required.

### L-2

The Corps and County acknowledge that the Coastal Storm Damage Reduction Project has achieved similar milestones to the SELRP, and the EIR/EIS identifies the project in Chapter 5, Cumulative Impacts. It does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

### L-3

The project listed in the comment is included in Table 5-1, Cumulative Projects List, as the Encinitas-Solana Beach Coastal Storm Damage Reduction and Beach Nourishment Project. This project was considered as part of the cumulative analysis of the EIR/EIS. See Response to Comment D-12.

### L-4

Placement sites for the SELRP are analyzed consistent with previous sand placement efforts (2001 and 2012 RBSPs). The proposed sand placement sites are not necessarily consistent with the Encinitas-Solana Beach Coastal Storm Damage Reduction Project, however, since that is a separate and independent project. Chapter 5 acknowledges the project, and the possibility that sand generated by the SELRP could be used by the Storm Damage Reduction Project if the projects are implemented concurrently. Under this scenario, the placement volumes would not be additive at specific sites, since both projects would not be implemented simultaneously without coordination. This EIR/EIS evaluates the generation of material for export to beaches and the nearshore, as well as the export of material to a temporary monobuoy for transport to various sites. The Encinitas-Solana Beach Coastal Storm Damage Reduction Project EIR/EIS evaluates potential impacts associated with placement of material on beaches as proposed in that document, also incurring the responsibility for any mitigation associated with the placement of those volumes. The newly defined extent of the Leucadia receiver site for the Storm Damage Reduction Project has been acknowledged in the EIR/EIS in Chapter 5, but no new cumulative impacts have been identified as part of the SELRP.

### L-5

The comment is noted. The Batiquitos receiver site was considered for inclusion in the SELRP, but eliminated because of its distance from San Elijo Lagoon.

### L-6

The comment is noted that the coastal zone is dynamic.

### L-7

The model calibration and predictive modeling of coastal effects was done as part of previous technical studies and is referenced in the EIR/EIS. A monitoring plan for beaches receiving sand will be applied to inform their management. The quantities of sand proposed for placement was determined using results of monitoring of both the SANDAG 2001 and 2012 RBSPs. Those data indicate that the quantities proposed by this project are within the level of tolerance to not cause significant adverse environmental impacts. This approach was taken to avoid and minimize effects to downcoast reefs and surfgrass.



#### Public Safety

- L-9 | Lagoon Restoration efforts may add pressure to Lifeguard Services (State and City) workload both directly (construction activities) and indirectly (coastal and offshore transitions) significantly; as such additional staffing and patrolling resource needs should be addressed in the final EIS/EIS, including potential cost implications.

#### Comparison of Alternatives

- L-10 | The Coast Highway 101 experiences coastal inundation and undermining during high surf and high tide events. The State predicts an increase in Sea Level Rise which will greatly increase the frequency of overtopping events and possibly lead to a catastrophic failure of the Coast Highway in the future. The Regional Beach Sand Projects have protected the Coast Highway since 2001 and reduced the overtopping events. The No Project Alternative fails to acknowledge the potential loss of this highway due to Sea Level Rise which would impact the lagoon habitats as well as the railroad corridor. In 2010, during the high tide, high surf event the Coast Highway was undermined and barricades have been required for public safety.

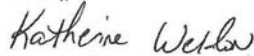
#### Cumulative Impacts

- L-11 | • The Encinitas Resort was never built and should be removed from the table
- L-12 | • Add the Moonlight Beach Lifeguard Tower Construction
- L-13 | • The Department of Fish and Wildlife Service dredge the Batiquitos Lagoon every 3 years
- L-14 | • Include the US Army Corps of Engineers Coastal Storm Damage Reduction Project.

#### Conclusion

- L-15 | The City looks forward to the San Elijo Lagoon Restoration Project. The lagoon is an important regional natural resource and we look forward to a coordinated regional approach that will improve the tidal prism of the lagoon, enhance the public beaches, and reduce shoreline erosion.

Sincerely,



Katherine Weldon  
Coastal Zone Manager

Attachment: Figure 1 – US Army Corps of Engineers Receiver Site for Encinitas

Tel 760/633-2600 FAX 760/633-2627, 505 South Vulcan Avenue, Encinitas, CA 92024 TDD 760/633-2700

#### **L-8**

See Response to Comment L-7. Impacts to reefs and surfgrass are evaluated in Section 3.6 of the EIR/EIS.

#### **L-9**

Potential impacts to lifeguard services and facilities are addressed in Section 3.14 Public Services and Utilities of the EIR/EIS. The SELRP includes a variety of project design features to ensure public safety for both lagoon restoration and materials placement including restricted beach access during construction (PDF-5, 63), secure construction staging areas and work areas (PDF-4, 34), various boating and marine safety precautions (PDF-59 through 62), sand placement to avoid blocking lifeguard line-of-sight (PDF-65), posted public safety signs (PDF-66), and checking placed material for potential hazards (PDF-67). These project design features would promote public safety and limit additional efforts needed by lifeguard services. Some additional lifeguard coordination may be required if mobile lifeguard towers need to be temporarily relocated (PDF-64), but this would be a minor one-time effort. The EIR/EIS does identify a potential public safety impact at Cardiff State Beach due to the CBFs and new inlet under Alternative 2A, but includes mitigation to relocate the mobile lifeguard tower to a location closer to the inlet and to post signs to enhance public awareness. With these measures, the need for increased lifeguard services would be minimized and is not anticipated to be out of the scope of normal service provision in that location.

#### **L-10**

Additional discussion regarding future flooding due to sea level rise has been added to the No Project/No Federal Action Alternative in Section 3.16.

#### **L-11**

The Encinitas Resort has been removed from Table 5-1.

#### **L-12**

As requested, the Moonlight Beach Lifeguard Tower Construction project has been added to Table 5-1 and considered throughout the cumulative analysis as appropriate. No additional cumulative impacts have been identified as a result of this addition.

#### **L-13**

The CDFW dredging of Batiquitos Lagoon has been added to Table 5-1 and considered throughout the cumulative analysis as appropriate. No additional cumulative impacts have been identified as a result of this addition.

#### **L-14**

The Coastal Storm Damage Reduction and Beach Nourishment Project is included in Table 5-1 under the U.S. Army Corps of Engineers heading.

#### **L-15**

The comment provides closing statements and no response is required.



City of  
Encinitas

**L-16**

The map showing the extent of the Leucadia receiver site in association with Comment L-4 is noted.

L-16

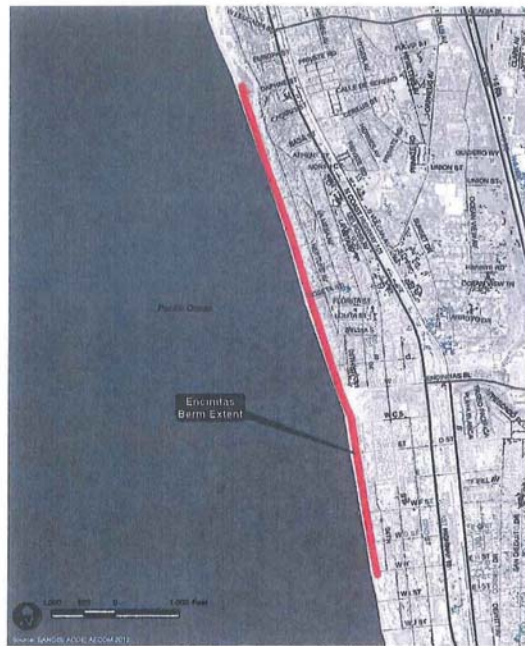


Figure 1 – US Army Corps of Engineers Receiver Site for Encinitas

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810 Mission Avenue  
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www.GoNCTD.com

September 24, 2014

Ms. Megan Hamilton (CEQA Contact)  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

Ms. Meris Bantilan-Smith (NEPA Contact)  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

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GENERAL COUNSEL  
Lon A. Williams

Subject: Comments on San Elijo Lagoon EIR/EIS

Dear Ms. Hamilton and Ms. Bantilan-Smith:

This letter is in response to the Public Notice of the Draft Environmental Impact Report (EIR)/ Environmental Impact Statement (EIS) for the proposed San Elijo Lagoon Restoration project. North County Transit District (NCTD) is the owner and operator of the Los Angeles to San Diego (LOSSAN) Railroad Corridor in Northern San Diego County. As such, NCTD is responsible for the maintenance of the old, wooden trestle railroad that crosses the San Elijo Lagoon. As part of the nation's freight and passenger rail network, this structure sees 46 passenger and 8 freight trains per day.

As you are aware, SANDAG is designing the double tracking of the railroad that crosses the proposed lagoon restoration area. As discussed in this EIR/EIS, State Senate Bill 468 (Kehoe) requires that construction phasing is developed to prove an environmentally superior phasing is selected in order to minimize impacts to the lagoon. Section 2.10 (Construction Methods, Schedule, and Project Design Feature) of the EIR/EIS assumes concurrent construction of infrastructure improvements to Interstate 5 and the LOSSAN rail double tracking.

NCTD has experienced tremendous scour on similar trestle bridges that cross the region's lagoons. In order to avoid the risk of scour occurring due to additional tidal and fluvial flows associated with dredging of the San Elijo Lagoon Restoration Plan, the railroad berm and bridges must be built first. NCTD would like to emphasize the importance of building the new railroad infrastructure before any other work takes place in the lagoon. This phasing will ensure the integrity of the railroad infrastructure, and safety of our passengers, operators and the movement of freight.

#### M-1

The comment provides information regarding NCTD's ownership and operating responsibility of the LOSSAN railroad corridor through San Elijo Lagoon, as acknowledged within the EIR/EIS.

#### M-2

The comment provides information as acknowledged in the EIR/EIS regarding SANDAG involvement in the design of the railroad double-tracking through the lagoon.

#### M-3

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR; therefore, no specific response is provided. It is correct that the EIR/EIS assumes concurrent or partially overlapping construction of North Coast Corridor Project I-5 improvements and the LOSSAN rail double-tracking projects. Additional information regarding Senate Bill 469 and the construction phasing approach is provided in the responses to the Caltrans comment letter, Letter G.

#### M-4

See Responses to Comments G-4 and J-4.

September 24, 2014

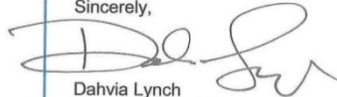
Page 2 of 2

M-5

We appreciate your continued support and collaboration as we work together to restore the lagoon and enhance the Nation's transportation network while protecting the railroad infrastructure.

Please contact Jill Gibson, Senior Transportation Planner, at (760)435-7277 or [jgibson@nctd.org](mailto:jgibson@nctd.org) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dahvia Lynch', written over a horizontal line.

Dahvia Lynch  
Chief Planning Officer

cc: Doug Gibson, San Elijo Lagoon Conservancy

**M-5**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.



## CITY OF SOLANA BEACH

635 SOUTH HIGHWAY 101 • SOLANA BEACH, CALIFORNIA 92075-2215 • (858) 720-2400  
www.cityofsolanabeach.org FAX (858) 792-6513 / (858) 755-1782

September 29, 2014

Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego, CA. 92123

Meris Bantilan-Smith  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

Re: Draft EIR/EIS for the San Elijo Lagoon Restoration Project

Dear Ms. Hamilton and Ms. Bantilan-Smith:

N-1

The City of Solana Beach (City) has been an active participant in the stakeholder meetings conducted over the last few years during development the proposed San Elijo Lagoon Restoration Project (SELRP or Project). City Staff have now reviewed the Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) for the SELRP and appreciates the opportunity to provide comments to the County of San Diego (County) and the U.S. Army Corps of Engineers (USACE) as the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) lead agencies, respectively. On behalf of the City of Solana Beach (City) and its residents, the City is submitting these comments for review and consideration in the preparation of the final EIR/EIS for the SELRP.

### City of Solana Beach is a CEQA Responsible Agency

N-2

The City supports the efforts of the San Elijo Lagoon Conservancy (SELC), County, CDFW and the USACE to restore the biological resources and enhance the ecological function of the San Elijo Lagoon. Like other restored and functioning coastal lagoons in the County, restoration of the tidal prism and maintaining an open coastal lagoon inlet will support the greatest diversity of habitat. The City welcomes the effort to restore the function of this important and highly valued coastal estuarine ecosystem.

N-3

The City agrees with the following statement contained on Page ES-1 of the Draft EIR/EIS: *Restoration of tidal influence to the lagoon and enhancing freshwater fluvial flows out of the lagoon would restore the physical (soils and hydrology) and biological (biogeochemical/water quality and*

### N-1

The comment provides introductory statements and no response is required.

### N-2

The comment provides statements of general support for lagoon restoration; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

### N-3

The comment states the City's concurrence with an EIR/EIS statement; no specific response is provided.



N-3  
cont. *habitat) functions that have been degraded over the years. For the lagoon environment to be highly productive, it must be continually replenished with water and nutrients from the ocean. Regular tidal action also promotes improved water quality.*

#### **Solana Beach Sewer Facilities**

N-4 The City's northern boundary is formed by the San Elijo Lagoon. Across the lagoon in the City of Encinitas, Solana Beach shares a sewage treatment and water reclamation facility with the City of Encinitas, known as the San Elijo Joint Powers Authority. The City's sewage is transported under and across the lagoon reserve to the treatment plant at two locations, one west and one east of Interstate 5. The facilities include a sewer pump station, a sewer force main, a siphon station, gravity mains, manholes, an ocean outfall and access roads. The piping of sewage under and across the lagoon has existed since 1965. These facilities have been operated by the City since its incorporation in 1986, and were operated by the County prior to that.

The two sewer main crossings were replaced within the last 14 years at a depth that anticipated future deep dredging. The design and construction of the lagoon restoration project must avoid damage to or disruption of the operation of these facilities. Continual access to the sewer pump station and the siphon station must be maintained during the lagoon restoration project.

#### **Erosion Problem**

N-5 In addition, the City's shoreline has an ongoing erosion problem and the City has been proactively developing various methods and approaches that will enhance local beaches, reduce erosion and its effects on the City's public beaches, bluffs, infrastructure, public beach access ways and all other existing structures. The City's position has been clear that if properly designed and implemented, lagoon restoration, and public beach restoration efforts can be highly synergistic.

As such, the City has been closely tracking the development of the SELRP and remains a key interested stakeholder as well as a Responsible Agency under CEQA.

#### **History of the SELRP and relationship to the Solana Beach & Encinitas 50-Year Coastal Storm Damage Reduction Project**

N-6 Originally, the SELRP was an element of the USACE/Solana Beach & Encinitas 50-Year Beach Nourishment Coastal Storm Damage Reduction Project first authorized by Congress in 2000. The SELRP was bifurcated from the coastal storm damage reduction project in 2005. The Cities of Solana Beach and Encinitas and the USACE prepared a draft EIR/EIS for the long-term shoreline protection project in 2012 and are currently preparing the Final EIR/EIS. Depending on the timing of the SELRP, the 1 million cubic yards of sand material generated from the lagoon could be used on local beaches, north and south of the lagoon, to supplement the volume that would otherwise have to be excavated from offshore borrow sites. As was noted in the City's comment letter on the Notice of Preparation (NOP), this potential scenario should be addressed in the final EIR/EIS as the construction time frames are likely to be synchronized. A copy of the City's NOP comment letter is attached for reference.

#### **N-4**

The comment provides information regarding the City's sewage infrastructure that traverses the lagoon. This information clarifies and details the information contained in Section 3.14.1 of the EIR/EIS regarding sewer infrastructure associated with the lagoon area. The sewer pipeline described in the comment is specifically addressed in the EIR/EIS analysis and states in Section 3.14.3: "For example, the recently installed Solana Beach sewer pipe (-45 feet) traverses the central basin and west basin and is located underneath the proposed sedimentation basin/overdredge pit. As such, activities occurring near this pipeline would not exceed -40 feet to ensure adequate cover is maintained (PDF-31)." PDF-31 specifically references the Solana Beach sewer pipeline and requires excavation activities to stay above the minimum cover requirement of utilities. As specified, a formal utilities investigation would be conducted as part of the next phase of the project, and infrastructure within the lagoon would be fully integrated into the final design and ensure ongoing structural integrity of the infrastructure.

#### **N-5**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### **N-6**

See Response to Comment D-12.

**Conclusion**

- N-7 The City looks forward to the San Elijo Lagoon Restoration Project. The Lagoon is an important regional resource and we look forward to a coordinated regional Project that will achieve the greatest diversity of habitat, help restore public beaches, reduce shoreline erosion and restore the lagoon's function within the littoral cell. As a CEQA Responsible Agency, the City would like to offer to meet directly with you to discuss the City's comments. Please contact me at 858-720-2431 to schedule a meeting.
- N-8

Sincerely,



David Ott  
City Manager

cc: Doug Gibson, Executive Director San Elijo Lagoon Conservancy  
Gus Vina, City Manager, City of Encinitas

**N-7**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**N-8**

The City of Solana Beach's role as a CEQA responsible party is acknowledged.





## Surfrider Foundation San Diego County Chapter

9883 Pacific Heights Blvd, Suite D  
San Diego, CA 92121  
Phone: (858) 622-9661 Fax: (858) 622-9661

Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
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Email: [megan.hamilton@sdcounty.ca.gov](mailto:megan.hamilton@sdcounty.ca.gov)

Meris Bantilan-Smith  
US Army Corps of Engineers, Los Angeles District  
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5900 La Place Court, Suite 100  
Carlsbad, CA 92008  
Email: [meris.bantilan-smith@usace.army.mil](mailto:meris.bantilan-smith@usace.army.mil)

September 29, 2014

Subject: Surfrider Foundation San Diego Chapter Comments on San Elijo Lagoon Restoration  
Project Draft EIR/EIS

Dear Ms. Hamilton and Ms. Bantilan-Smith,

O-1

The Surfrider Foundation San Diego County Chapter recognizes beaches as a public resource held in the public trust. Surfrider Foundation is an organization representing 250,000 surfers and beach-goers worldwide that value the protection and enjoyment of oceans, waves and beaches. For more than 20 years, the San Diego Chapter has reviewed and commented on coastal construction projects and policy in San Diego County. We appreciate the opportunity to provide comments to the County and the Army Corps about these important issues.

O-2

We commend the County and the Lagoon Conservancy for engaging Surfrider and other stakeholders in the preparation of the surfing study and other aspects of this project prior to and during the EIR process.

We are also supportive of improving water quality and habitat in the San Elijo Lagoon and are pleased to be part of the process to accomplish those goals.

We do continue to have some concerns with the alternative analysis and believe that these may be resolved by addressing the detailed comments below.

*The Surfrider Foundation is a non-profit grassroots organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches through a powerful activist network. Founded in 1984 by a handful of visionary surfers in Malibu, California, the Surfrider Foundation now maintains over 250,000 supporters, activists and members worldwide. For an overview of the Surfrider Foundation San Diego Chapter's current campaigns, programs and initiatives go to [www.surfridersd.org](http://www.surfridersd.org) or contact us at [info@surfridersd.org](mailto:info@surfridersd.org) or (858) 622-9661.*

### O-1

The comment provides introductory statements and no response is required.

### O-2

The comment provides continued introductory comments; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### General Comment

- O-3 We have a general concern with elements of the alternatives that increase the armoring of the coastline in the project area. Coastal armoring (revetments, seawalls, groins, jetties, etc) is associated with the inevitable long-term result of loss of beach width. Specifically, we are concerned about the impacts associated with the Cobble Blocking Features (CBFs) and the new Highway 101 bridge proposed for Alternative 2A, as well as the fixing of Highway 101 in place in Alternatives 1A and 1B (repairs or replacement of the bridge over the existing inlet). We note that for the new bridge proposed for Alternative 2A, Highway 101 will be wider, and will therefore extend further seaward. We are concerned that fixing 101 in place may eventually lead to the complete armoring of this stretch of shoreline.
- O-4
- O-5

#### Specific Comments

##### 1. Surf spot monitoring should be included in all alternatives, not just Alternative 2A.

In land use section 3.1.3 ENVIRONMENTAL CONSEQUENCES the discussion of surfing impacts for Alternative 2A states:

- O-6 *As a project design feature (PDF-63), surf condition monitoring is included in focused areas as part of the project to verify the modeling results and document the anticipated lack of change in surf conditions. The data collected during monitoring would be useful in future analysis of projects that may modify the shoreline and provide baseline information regarding the coastal processes in the Cardiff Reef area.*

But in discussion for Alternative 1B, surf condition monitoring (PDF-63) is not included. Instead, the EIR states:

*Alternative 1B would not preclude the viability of recreational activities during construction and would not result in a major loss of recreational uses. Alternative 1B would also not result in the permanent and major loss of recreational use areas or major conflicts with adjacent recreational uses in the post-construction period, including surfing. Recreation impacts related to surfing would not be substantially adverse and would be less than significant (Criteria D and E).*

The nearshore placement of sediment proposed in Alternative 1B is only 200,000 cy less than that in Alternative 2A, while beach fill volumes remain the same. The EIR/EIS states both

↓  
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#### O-3

Loss of beach due to the CBFs is not anticipated to occur. The CBFs are designed to not penetrate the surfzone and therefore would not affect sand transport. Additionally, the structures would be built below the beach and covered by sand all year, except when the beach is stripped of sand in winter, as described in Section 2.4.2. In this condition, cobble would become exposed on the beach, and the CBFs would slow cobble movement into the inlet, thus reducing cobble delivery to the wetland. The new inlet would be a loss of beach area, but the closure of the existing inlet and reversion of that to a beach would offset the loss. Regular maintenance dredging would nourish the beach and add sand to it, thereby keeping it wide enough to offset any losses from the inlet. Therefore, the net effect would be no net long-term loss of beach.

#### O-4

Section 3.3.3 of the EIR/EIS provides discussion and analysis of the potential for impacts to result from the CBFs and new Highway 101 bridge under Alternative 2A, as well as from the bridge retrofit under Alternatives 1B and 1A. Under all alternatives, channel bank and bridge abutment protection would be required to protect channels and structures from possible undermining due to ongoing erosion during severe storm flow events. The EIR/EIS found that no significant adverse impact to oceanography and coastal processes would result.

#### O-5

It is correct that the new Highway 101 bridge would be slightly wider and extend farther seaward; this is necessary to accommodate the proposed bicycle lanes and pedestrian walkway. Future armoring actions that occur along stretches of Highway 101 are outside the scope of this project and therefore are not discussed in the document. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

#### O-6

The PDFs listed in Table 2-26 are applicable to all project alternatives, unless otherwise noted. The analysis of Alternative 1B was not meant to exclude the requirement for surf condition monitoring at materials placement locations as required by PDF-73; however, in some cases where analysis is similar between alternatives, not all details are repeated to avoid redundancy. Surf condition monitoring as specified in PDF-73 would occur for all alternatives proposing material reuse.

O-6  
cont. ↑ alternatives should not have an impact on surfing, but there is an arbitrary threshold that establishes whether or not it is worth studying the effects of the project on surfing, which is one of the major land and recreational uses of the project area. The idea of placing that much sand between two of San Diego's best reef breaks and not monitoring how it behaves is a missed opportunity to learn from project experiences.

Surf spot monitoring should be included for all project alternatives.

**2. Enhanced ocean water quality monitoring should be included for all alternatives.**

O-7 One of the important project objectives is improvement of water quality within the San Elijo Lagoon. This is to be primarily accomplished by increasing tidal flushing and water circulation within the lagoon. The possibility exists that the increased tidal flushing and improved circulation will speed the transport of pollutants from the lagoon to the ocean. To monitor for these potential effects and safeguard swimmers and surfers who intensively use the nearshore ocean in the project area, the existing beach monitoring conducted by San Diego County Environmental Health Department should be enhanced to increase the frequency of sampling in areas potentially impacted by discharges from the existing inlet (Alternatives 1A and 1B) or the proposed new inlet (Alternative 2A).

**3. More detail is necessary regarding the width of beach fill at various sites.**

O-8 The detail provided in the Draft EIR/EIS, regarding the construction of beach fill at specific beaches, is inadequate to properly assess all impacts.

Page 2-105 states:

*The sand placement footprints and beach building strategies proposed for the lagoon restoration project would be similar to those utilized for RBSP. Maximum potential beach fill quantities for each beach location are presented in Table 2-20.*

Table 2-20 also requires fills to be within range of RBSP with the exception of the Cardiff area where the volume exceeds that of RBSP by extending the fill area further north and south.

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**O-7**

As noted by the commenter, the speed of transport of pollutants through the lagoon may be increased compared to existing conditions; however, the volume and concentration of pollutants is dependent on the watershed upstream from the lagoon and would not change due to the project. Increased water quality monitoring in the long term is not expected to be necessary since an increase in pollutants entering the lagoon, and therefore exiting the lagoon to the shoreline environment, would not be anticipated to occur as a result of the proposed project. Water quality is expected to improve over existing conditions in the long term with increased circulation and tidal flushing and decreased residence time. No mitigation would be necessary since water quality is expected to improve and no significant long-term impacts to water quality would occur with implementation of the proposed project. Therefore, the overall long-term health of the lagoon would be improved, with improved water quality, residence times, and habitat conditions. Increased pollutants at the lagoon mouth could occur initially following project construction; however, this would be temporary and pollutants would be expected to dissipate with ocean wave action and tidal flushing, and neither short-term nor long-term impacts would be anticipated. The shoreline environment would not be impacted in the long term and would not require increased monitoring. The San Diego RWQCB would prescribe short-and long-term monitoring through the 401 certification process. Monitoring would continue to be conducted by the County Environmental Health Department, which would monitor for any changes in water quality conditions. Although not anticipated to occur as a result of the proposed project, if any changes in water quality conditions should occur following project implementation, it would be at the discretion of the County Environmental Health Department to adopt additional monitoring. There are currently no water quality issues at the lagoon mouth. According to the Annual Beach Report Card, water quality at the San Elijo Lagoon outlet received a grade of A and A+ from 2013–2014 (Heal the Bay 2014).

**O-8**

The EIR/EIS shows dimensions (widths and lengths) of each sand placement site at the time of placement, as noted by the commenter. Sand placement footprints are shown in Figures 2-11A through 2-11E. The fills at sites, except Cardiff Beach, are identical to those evaluated and constructed by SANDAG in 2001 and 2012, as described in Table 2-20. The Cardiff Beach site is located in the same location as the sites evaluated, but extends farther north and south than the previously evaluated footprint. Each site was analyzed assuming the immediate post-construction beach width at the mean higher high water (MHHW) mark as the starting point. The model applies wave energy to the beach to show sand dispersion alongshore. This analysis includes the beach profile equilibration process as presented in the Shoreline Morphology Study (M&N 2012c), which predicts shoreline position as materials placed within the placement footprints disperse through littoral processes evaluated in Section 3.3. As the beach profile equilibrates, it pivots in a cross-shore direction at or near mean sea level (MSL), with the beach profile advancing below MSL and retreating above MSL. Therefore, the MSL position does not change appreciably during beach profile equilibration. The MHHW mark is slightly higher but very close in space to the MSL line, and so the MHHW mark only changes very slightly during beach profile equilibration. Therefore, analysis using the post-construction profile prior to equilibration is sufficient to make approximations of future beach widths in the project vicinity. Results are intended to provide general trends in shoreline position rather than specific predictions at each site. However, results are useful to also show trends in

Table 2-20  
 Proposed Materials Disposal and Beneficial Reuse Scenarios

Approximate Net Quantity of Material: Alternative 1A = 160,000 cy of relatively poor-quality material that is only suitable for offshore disposal at LA-5 Alternative 1B = 1.2 mcy (overdredging would occur to generate appropriate material for beneficial reuse) Alternative 2A = 1.4 mcy (overdredging would occur to generate appropriate material for beneficial reuse)			
Type of Materials Placement	Potential Disposal Locations	Maximum Volumes Proposed for Placement by Site	
		Alternative 2A and Alternative 1B (cy)	Alternative 1A (cy)
Offshore Disposal	LA-5	0	160,000
Offshore Stock-piling (outside littoral cell)	SO-5/SO-6	1,000,000	0
Nearshore (inside littoral cell)	Cardiff	Alternative 2A	Alternative 1B
		500,000	300,000
Onshore (beach placement)	Cardiff	300,000	0
	Leucadia	117,000	0
	Moonlight Beach	105,000	0
	Solana Beach	146,000	0
	Torrey Pines	245,000	0

**Notes:**

General – The disposal/placement sites have not yet been approved. The disposal/reuse scenario will be identified once the final SAP is reviewed and approved by the Corps and EPA.

1. Nearshore materials placement quantity at Cardiff is greater in Alternative 2A because a new inlet would require construction of a prefilled ebb bar (Section 2.4).
2. Materials placement quantities exceed amount to be disposed of, or reused, to allow flexibility at individual placement sites.
3. Onshore beach sand placement sites are consistent with the 2012 RBSP (SCH # 2010051063) with the exception of Cardiff, which would extend slightly further north and south along the coastline. Refer to Figure 2-11 for the proposed project's sand placement sites. While 2012 RBSP sites are proposed for use, the SELRP would obtain permits for placement, since the 2012 RBSP was a one-time project implemented in 2012.
4. Sand Compatibility and Opportunistic Use Programs (SCOUP) sites are not included as an option for materials placement in this EIR/EIS because the existing SCOUPs assume construction methods and other conditions that are not consistent with the SELRP (e.g., daytime construction only).

cy = cubic yards

mcy = million cubic yards

However, as we have previously commented on the RBSP project EIR, simple profiles of berm placements are inadequate to predict post project profiles and hence the impacts.

We recommend revisions to clarify the nourishment profiles at all receiver sites post construction and provide revised impact analysis as needed.

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sedimentation along the shore, and areas vulnerable to sand burial. The results are extrapolated along the beach profiles to provide an indication of potential environmental impacts to habitat and other resources, such as recreation (e.g., surfing). Technical reports prepared for the SELRP incorporate the results of the Shoreline Morphology Study as appropriate, and evaluate potential impacts associated with dispersion of materials placed, as well as impacts associated with direct placement. This method applied here is well developed based on the previous two large-scale SANDAG nourishment projects. Therefore, the Corps and County believe that impacts are appropriately analyzed and quantified in the EIR/EIS.



- 4. More detail is needed regarding the distance from shore, volume and geometry of “nearshore” sand placement at Cardiff.**
- O-9 The text on page 2-105 and the corresponding Figure 2-11C, says the nearshore placement will be “just outside the surf zone.” In addition to the lack of an engineering description, the volume of sand to be placed in the nearshore zone is not specified clearly. The description is imprecise and difficult to use to assess impacts. A more precise understanding of the location of the nearshore profile placement should be provided in order to assess impacts and an updated impact analysis provided as required.
- O-10 Additionally, the Draft EIR/EIS mentions the use of similar nearshore placements for other projects in Southern California. Details from these projects will be helpful in understanding the potential impacts of the neashore sand placement proposed at Cardiff.
- 5. The Bridge in Alternative 2A would have substantial impacts on shoreline access and other unstudied CEQA concerns.**
- O-11 In Section 3.5.3 Environmental Consequences of Geology/Soils, it is stated:
- O-12 *Under Alternative 2A, a new Coast Highway 101 bridge would be built to span the new inlet location. Construction of this bridge would potentially occur within soil types subject to liquefaction, erosion, settlement, or other unstable geologic conditions, and this would be a potentially significant CEQA impact. Although the bridge would be designed in accordance with applicable current state and federal guidelines that address geologic hazards, seismic codes, geotechnical conditions, and loading criteria (PDF-31), mitigation would be required.*
- There is a lack of detail describing the bridge construction. It is unclear what potentially significant CEQA impact would be encountered and what would need to be mitigated.

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#### O-9

The graphic in Figure 2-11(c) is based on an engineering drawing (Figure 4-10 in Appendix N) that shows the bathymetric contours relative to the nearshore mound. The EIR/EIS has been modified to show depths for placement. Analyses were performed using the engineering drawing and are based on its dimensions and quantity, and the results are adequate to determine environmental impacts. The quantities are 500,000 cy for Alternative 2A and 300,000 cy for Alternative 1B, as indicated in the EIR/EIS.

#### O-10

Other nearshore placement projects have occurred recently at Newport Beach (1992), Bolsa Chica (2005–2006), and Huntington State Beach (2008–2009). The mounds remain for a period of time that depends on the wave energy as well as the quantity and quality of material placed at the mound. Although sand from the mounds described above dispersed gradually, the mounds provided rideable waves for approximately 6 months.

#### O-11

The comment does not clarify or explain how the bridge under Alternative 2A would cause impacts to shoreline access and does not list other unstudied CEQA concerns. Coastal access is considered in Section 3.1 Land Use/Recreation, in the EIR/EIS. Coastal access is evaluated as part of the EIR/EIS, since the Coastal Commission requires this for their CDP decision, and it is specifically identified in the significance thresholds for CEQA. Coastal access would be further evaluated and addressed through the Coastal Commission’s process required to grant a Consistency Certification, Section 30600(a) of the CCA, or Waiver of Federal Consistency Provisions under the CZMA, as well as a CDP as necessary for project implementation.

#### O-12

Section 15124 of the CEQA Guidelines states that “The description of the project shall... not supply extensive detail beyond that needed for evaluation and review of the environmental impact.” Information has been provided in the EIR/EIS at a level of detail that enables a complete analysis under CEQA and NEPA to be performed. The details available at this point in the planning and design process are included in Chapter 2 of the EIR/EIS. Until final selection of the preferred alternative/LEDPA, it is not appropriate to design the bridge to a higher level of detail. The CEQA geology/soils impact identified in the comment results from construction within the unstable soil and geologic conditions of the lagoon and is tied to the CEQA Threshold of Significance C, listed in Section 3.5.2, related to the exposure of people or structures to adverse effects from liquefaction, erosion, settlement, and other unstable geologic conditions. This CEQA impact is mitigated to less than significant as outlined in Section 3.5.4.

**6. The Bridge in Alternative 2A is inconsistent with policies in the Coastal Act.**

The Coastal Act Section 30235 requires that revetments only be constructed for existing development or Coastal Dependent uses.

Section 30235 Construction altering natural shoreline  
 Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Alternative 2A requires the construction of both an ebb bar and revetments. The ebb bar acts as a "soft" breakwater limiting wave action to the new inlet.

The new inlet is not an existing development, therefore the only possible way to approve construction of revetments would be under the provision of a coastal dependent use. It is unclear if the development in the lagoon meets the Coastal Act intent of a coastal dependent use.

The Coastal Act Section 30253 requires that:

"New development shall do all of the following:

...

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs."

The new bridge is new development that requires devices that alter landforms. The new bridge design also expands the footprint of the road itself from 64ft in width to approximately 76.5ft in width as is shown in Figure 2-5.

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**O-13**

See Response to Comment O-11. This issue will be discussed as part of the CZMA consistency determination process. California Coastal Act, Section 30101 states that "Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function." The lagoon restoration and new inlet meets the definition of coastal dependent as it would not be possible to construct an open ocean inlet to the lagoon without the location being on the sea. It is hydrologically necessary for the inlet to cross the beach and open into ocean water to allow for tidal exchange.

**O-14**

The bridge proposed under Alternative 2A is not considered new development as it is replacing an existing structure that is seismically deficient. The protective armoring proposed around the bridge footings is necessary for stability and structural integrity, but would not alter natural landforms along bluff and cliffs. The bridge footings would not be located in areas of natural landforms or next to bluffs or cliffs. While the comment is correct that the new bridge and its accompanying CBFs would have a wider footprint and prevent access along the beach across the new inlet at times, this increase is necessary to accommodate bike lanes and a pedestrian walkway along the roadway. This enhanced roadway access would replace the access that is currently available on the sand and would provide continued safe coastal and shoreline access post-project in compliance with Coastal Act Sections 30210 and 30211.





O-14 cont.	<p>The road base would be further fortified with sections of revetment termed Cobble Blocking Features in the Draft EIR. On page 2-31 and elsewhere the CBFs made of riprap are described as protective devices against storm waves.</p> <p><i>The CBFs at San Elijo lagoon would be attached to the proposed Coast Highway 101 bridge abutments and extend seaward (perpendicularly) approximately 130 feet to the -5-foot mean lower low water (MLLW) contour on the beach. The CBFs would be approximately 100 feet wide at the seaward edge and extend laterally along the highway bridge approach for a distance of approximately 220 feet. These features would be constructed of riprap large enough to be stable during extreme storm wave events. The exposed "face" of the CBFs along the inside bank of the tidal inlet channel could be treated to look like natural bedrock, sandstone, or other sedimentary features, similar to the treatment on the seawall at south Cardiff State Beach shown in Figure 2-7. The CBFs are anticipated to be slightly visible above the beach profile (approximately 1 foot exposed) in winter and then naturally buried by sand in summer, as shown in Figure 2-8.</i></p> <p>The construction of the new bridge, revetment (CBFs) and expanded roadway in alternative 2A has substantial impacts to Coastal Access. The CBFs block access alongshore as they project 130 ft seaward (perpendicular to the shoreline). The Coastal Act requires that new development must provide access to and along the shoreline as required in Sections 30210 and 30211.</p>
O-15	<p>Although they are not designed to trap sand, Surfrider is concerned that the CBFs may disrupt the flow of sand. They will also make beach access more difficult. As stated in (ES-24):</p> <p><i>Permanent significant unavoidable and substantial adverse impacts due to placement of CBFs (Alternative 2A only) would also result, and feasible mitigation is not available.</i></p>
O-16	<p>The CBFs are hard structures that would apparently be used for more than just keeping cobble out of the inlet.</p> <p><i>These features would also minimize the potential for the inlet to experience substantial erosion due to tidal flow and scouring, and wave-induced scour by blocking direct wave impact on bridge abutments. (p. 3.5-11)</i></p> <p>In response to sea level rise and eroding coastlines, the CBFs will be hardened structures that fix the shoreline. Although they are designed not to trap the alongshore flow of sand, they will provide armoring for the bridge and stabilization to the inlet. If these features are going to</p> <p><i>The Surfrider Foundation is a non-profit grassroots organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches through a powerful activist network. Founded in 1984 by a handful of visionary surfers in Malibu, California, the Surfrider Foundation now maintains over 250,000 supporters, activists and members worldwide. For an overview of the Surfrider Foundation San Diego Chapter's current campaigns, programs and initiatives go to <a href="http://www.surfridersd.org">www.surfridersd.org</a> or contact us at <a href="mailto:info@surfridersd.org">info@surfridersd.org</a> or (858) 622-9661.</i></p>

## O-15

As designed, the CBFs are too short to trap sand. They are designed to be short and low enough to be buried by sand naturally during summer sand build-up on the existing profile. When winter conditions are present, sand naturally moves off the beach and would expose the CBFs. At this point, the remaining sediment on the beach is cobble, and the CBFs would act to partially block the cobble from freely entering the lagoon mouth. The CBFs are not long enough to completely block the cobble, but are intended to reduce the movement of cobble into the inlet and lagoon rather than eliminating it. The reason to reduce cobble build-up in the inlet and lagoon is to facilitate more effective maintenance. See Response to Comment O-14 for a discussion of potential recreation impacts of the CBFs.

## O-16

As described in the EIR/EIS and in Response to Comment O-15, the intent of the CBFs is to reduce cobble build-up in the inlet and lagoon. While some coastal protection may occur as a secondary result, the CBFs are not designed for the purpose of providing coastal protection. During summer months, the CBFs would not be exposed and would be below the natural sandy surface. The use of the term CBFs is not a critical factor in the environmental analysis of the SELRP.

- O-16 ↑ provide coastal protection, they should be termed appropriately. When not covered with sand, the CBFs will appear similar to revetments.  
cont.
- O-17
- Given Public safety concerns in section 3.15 regarding swimmers and beachgoers, how will lifeguards access the beach/ocean in the vicinity of the CBFs at high tide when beach driving is not possible? The Executive Summary contains a summary of this issue (ES-25):
- Under NEPA, the new inlet and associated CBFs would be a permanent project feature onshore and nearshore along Cardiff State Beach and persons who stray too close to these areas may result in injury should they be thrown against the CBFs or swept into the inlet or rip current. Impacts would be significant and substantially adverse.*
- In addition to what is mentioned above with respect to the Coastal Act, Alternative 2A has impacts that are significant and unmitigated under both CEQA and NEPA, yet they appear to not be deemed as significant or substantial. Fixing the shoreline at a more seaward location and eliminating beach area due to the construction of the CBFs and highway is an impact consistent with the criteria in Section 3.1.2.
- O-18
- 3.1.2 CEQA THRESHOLDS OF SIGNIFICANCE**  
 A significant impact related to land use and recreation would occur if implementation of the proposed project would:
- A. Result in long-term or permanent conversion of land to other uses that would strain similar, nearby uses in their ability to provide the same level of use as that of existing conditions;
  - B. Be incompatible with adjacent land uses as defined by planning documentation;
  - C. Conflict with existing or future planned areawide or local policy issues or plans;
  - D. Preclude viability of recreational activities, including surfing, during construction (temporary impacts) that result in a major loss of recreational uses; or
  - E. Result in permanent and major loss of recreational use areas or major conflicts with adjacent recreational uses, including surfing, in the post-construction period.
- The Draft EIR neglects the significance of non-compliance with the Coastal Act policy analysis required under section 3.1.2 B and C and recreational loss associated with 3.1.2E. Even absent compliance with the Coastal Act, these impacts would still be significant and unavoidable under
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#### O-17

As described in mitigation measure HAZ-1, the project will continue to coordinate with the California Department of Parks and Recreation to relocate the mobile lifeguard tower (State Lifeguard Tower No. 6) closer to the new inlet location. This would minimize the need for lifeguard services to drive or travel any substantial distance, or to cross the portion of beach submerged during high tide, to provide protective services near the new inlet and CBFs.

#### O-18

The EIR/EIS analyzed consistency with the Coastal Act in Section 3.1 Land Use/Recreation against the CEQA thresholds provided in Section 3.1.2 (Criteria B and C). The EIR/EIS identifies a loss of existing beach area due to project construction; however, upon completion of Alternative 2A, it is anticipated that no substantial net change in accessible beach area would occur because the existing tidal inlet channel would close and be replaced with the new channel, plus nourishment may widen the beach from existing conditions. Sufficient stretches of beach would exist on both sides of the inlet so that overall beach use in the area would not be substantially altered. Access to cross over the inlet would be provided by the new Coast Highway 101 bridge, and walking along the water's edge to cross the inlet could still occur depending on tidal conditions. For these reasons, analysis of Alternative 2A did not identify an impact in exceedance of the thresholds of significance related to land use and recreation. The comment is unclear in the need for revisions in Section 3.13 Socioeconomics and Environmental Justice.

- O-18 ↑ the criteria but are not analyzed as such. Sections 3.13 and 4 should be modified to properly  
cont. assess these impacts.<sup>1</sup>
- O-19 | If the alternative were redesigned to be more landward and not require revetments or CBFs, the impacts could possibly be minimized.
- O-20 | **7. Alternatives 1A, 1B and 2A all have land use, visual and recreation impacts by maintaining Highway 101 at its present location or a more seaward location.**
- O-21 | As mentioned above, Alternative 2A proposes adding revetments more seaward of the present Highway 101 location. Alternatives 1A and 1B fix the Highway at its present location. Since at least 1998 and as late as 2014<sup>2</sup>, it has been known that Highway 101 is threatened by erosion. Expanding lagoon habitat more westward puts further pressure on maintaining Highway 101 at its present location. Rising sea level analysis is required by both State Coastal Conservancy<sup>3</sup> and the Army Corps of Engineers. It appears that no impact analysis was performed for the possible erosion and flooding associated with Highway 101 and sea level rise except for Alternative 2A where armor was deemed necessary to avoid this impact. The EIR/EIS mentions the potential flooding issues in the existing conditions but fails to include the impact analysis of maintaining the highway at its present location in 1A and 1B.
- O-22 |
- O-23 | The EIR should include impact analysis and land use analysis with potential armoring along Highway 101.

<sup>1</sup> While Section 3.13 states that impact along the shoreline is preserved with 2A, the analysis neglects the Coastal Act policies mentioned and the encroachment loss. In addition, leaving the beach access along the coast along a road is not equivalent in experience of horizontal beach access and is an incorrect analysis of horizontal beach access.

<sup>2</sup> Minutes of 3-25-98 Encinitas City Council Meeting as shown in Appendix and Page 3.2-7 of the Draft EIR.

<sup>3</sup> See page 2-22 of Draft EIR.

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## O-19

As detailed throughout the EIR/EIS, the three build alternatives have been designed with various different components as necessary and in coordination with stakeholders and agencies, including the Coastal Commission. Alternatives 1B and 1A, which would include retrofit of the existing Highway 101 bridge, would not include CBFs as proposed under Alternative 2A. The ability to redesign a bridge more easterly is limited due to the existing alignment of historic Highway 101 and the need to include appropriate bicycle and pedestrian facilities. As summarized in the Executive Summary, Table ES-4, no significant impacts related to oceanography/coastal processes or land use and recreation were identified for Alternative 2A that would benefit from alternative redesign as suggested by the comment. For other topic areas where impacts were identified, mitigation is provided to reduce impacts. PDFs required by the project would also serve to minimize many potential effects of the project.

## O-20

Significant land use and recreation impacts were not identified for any of the three build alternatives. Visual impacts were identified for Alternatives 2A and 1B, but not related to maintaining Highway 101 at its current location. The relocation of historic Highway 101 from its present location is outside of the scope of the lagoon restoration project. Modifications to roadway infrastructure are proposed only when necessary for project implementation.

## O-21

Project components, including the CBFs that would be implemented west of Highway 101 under Alternative 2A, would not exacerbate or worsen the seaward erosion potential experienced by Highway 101; therefore, the historic and ongoing threat of erosion to Highway 101 is beyond the scope of the SELRP. See Response to Comment O-3.

## O-22

Sea level rise is analyzed in Section 3.16 Global Climate Change and Greenhouse Gas Emissions of the EIR/EIS. The sea level rise analysis identifies potential impacts associated with implementation of the SELRP on infrastructure and structures in the future scenario. The consideration of future sea-level rise flooding and erosion of Highway 101 is not affected by the SELRP and is, thus, outside the scope of the project and its analysis. The SELRP is analyzed for its function at year 2065, or approximately 50 years after construction. That 50-year time horizon assumes sea level rise of approximately 2 feet.

## O-23

See Response to Comment O-21.

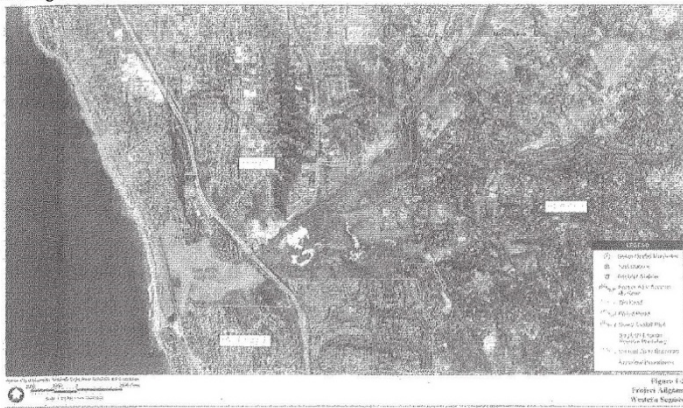


**8. The excavation work in the lagoon may impact the outfall line from San Elijo JPA and the connection to the Hale Ave Treatment Plant. The EIR should disclose this as a potential impact and show the outfall and connection through the lagoon on the project maps in Section 3.14.**

It is our understanding that the outfall line from San Elijo JPA wastewater facility and the connection to the land outfall from the Hale Ave. facility is in the project area where many if not all of the alternatives will perform dredging in the lagoon area. The project description and alternative analysis does not include any precautions or discussion about these outfalls. The final EIR should show the location of any outfall lines extending from Escondido into the lagoon area and then out to the ocean and provide any required environmental analysis.

The Hale Avenue Plant Connecting Pipe Map may be found here for example:  
<http://www.spl.usace.army.mil/Portals/17/docs/regulatory/RGP/RGP87.pdf>

See Figure 1-2c.



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**O-24**

The San Elijo Ocean Outfall is described in Section 3.14.1. As detailed in Section 3.14 Public Services and Utilities, and required by PDF-29, prior to final project design and engineering, a detailed utilities study would be done in coordination with utility providers to accurately locate utilities for avoidance purposes. The utility study would provide information for use in design and engineering to minimize impacts to utilities and service disruptions and provide for the continued stability and integrity of existing or relocated utilities and infrastructure. Additionally, PDF-31 requires dredging and excavation activities to stay above the minimum cover required by the utilities' owner. For these reasons, the EIR/EIS found no significant impact to utilities and infrastructure due to lagoon restoration.

- O-24  
cont. ↑ From the permit on Hale Ave tertiary output still goes into the pipe:
- "Recycled water that is not reused will be dechlorinated as needed and discharged to the San Elijo Ocean Outfall. The discharge from the Facility to San Elijo Ocean Outfall is separately regulated under Order No. R9-2005-0101 (NPDES CA0107981)."*
- O-25
- 9. Based on the present analysis, we believe the EIR demonstrates Alternative 1B is the "Environmentally Preferable Alternative," or the "Least Environmentally Damaging Practicable Alternative."**
- O-26
- Alternative 1B appears to meet the project goals of lagoon restoration but minimizes impacts to access created by expansion of Highway 101 and the construction of a new inlet and brige with the associated CBFs. We believe expansion of the highway has adverse impacts on beach access and is equivalent to development of a seawall on the shoreline and a soft breakwater offshore.
- O-27
- We also note that Alternative 1B requires less initial dredging (1.2 mcy versus 1.4 mcy) than for Alternative 2A, and that the estimated average annual dredging is also less (40,000 cy/yr versus 100,000 cy/yr). See Table 2-19 and pages 2-100 to 2-102. We believe the reduced dredging volumes for Alternative 1B will not only reduce costs of the restoration, but will also result in less impacts to surf spots and nearshore ecology than would be the case for Alternative 2A.

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#### O-25

The Draft EIR/EIS did not identify a LEDPA. The preliminary LEDPA is identified in the Draft 404(b)(1) Alternatives Analysis, included in this Final EIR/EIS as Appendix O. The final LEDPA will be identified in the Record of Decision issued by the Corps.

#### O-26

The SELRP does not propose to expand capacity along Highway 101 but rather includes necessary roadway infrastructure improvements/modifications where required to accommodate the project and provide stable and appropriately designed elements. The widened Highway 101 bridge proposed under Alternative 2A is necessary to accommodate the pedestrian and bicycle facilities to maintain and improve local coastal access. Beach and coastal access was analyzed in Section 3.1 Land Use/Recreation, and no significant adverse impacts were identified.

#### O-27

The commenter notes that lower costs and less surf and nearshore ecology impacts would result with implementation of Alternative 1B as compared to Alternative 2A. This conclusion is consistent with the analysis provided in the EIR/EIS.

- O-28 | **10. Section 3.1 evaluates project impacts to surfing areas. The general conclusion is that there would likely be no significant impact to surfing at Cardiff Reef under any of the alternatives. There may be a slight improvement to surfing conditions in the George's area due to a peak created by nearshore sand placement (Alts 1B and 2A) and due to breaking up the nearshore bathymetry by constructing a new inlet (Alt 2A).**

We are incorporating our comments on the surfing study sent on July 24, 2014 herein in their entirety with only minor modifications.

Comments on: San Elijo Lagoon Restoration Project Surfing Study

- O-29 | As part of the upcoming restoration of San Elijo Lagoon, the San Elijo Lagoon Conservancy prepared a Surfing Study to identify and quantify potential impacts to surf spots in proximity of the project area. The study describes construction alternatives associated with the project, which may impact the quality of surrounding surf spots. Alternatives include moving the lagoon inlet and stabilizing with jetties (termed Cobble Blocking Features), and the creation of a large mound of sand offshore of the project area, which would be within the surf breaking zone. The comments provided here are not directed towards the specific project alternatives discussed above. These comments are focused only on the Surfing Study and how they might improve impact analysis overall.

It should be noted, that in the many years of reviewing and commenting on beach construction project EIR/EIS, this is the first time we've seen a study directed specifically for identifying impacts to surfing resources. This is a great step and further demonstrates the commitment of the Conservancy to preserve the quality of nearby surf spots.

#### General comments

- O-30 | The mound of sand that will be placed offshore of the inlet needs better description. The map/drawing of the feature is hard to read and overall lacks specifics. Additionally, it would be helpful to include map/drawings of the "Huntington Beach Freak Peak" and "Submarines" at Newport Beach. Additionally, any information about how the mound dispersed over the post-installation period would be very useful.

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#### **O-28**

It is correct that surfing condition impacts were evaluated within Section 3.1 of the EIR/EIS. The comment does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### **O-29**

The comment provides introductory statements regarding review of the San Elijo Lagoon Restoration Project Surfing Study; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### **O-30**

The mound of sand that would be placed offshore has been conceptually designed to enable an analysis to be completed under CEQA/NEPA. It would be completely detailed and designed once the project alternative is selected for implementation and through the permitting process. During the final design and permitting process, other similar projects would be studied and considered to help guide the process.



O-31 The use of the term "Cobble Blocking Feature" should be reconsidered. Essentially these are jetties and revetments, regardless of their length and proposed use. It is hard to determine the actual length of the structures proposed for SELRP, but they seem similar to the jetties installed at the new Batiquitos inlet. In fact, later in the document, the Batiquitos project is used as an example where improvement of surf spots was claimed to be due to creation of a new inlet. In that description, you refer to the stabilizing rock structures as jetties, which would be appropriate for the SELRP project as well.

O-32 Specific comments


Section 6: Existing Surfing Conditions. Overall, this is well done. We will be requesting that the surfing monitoring program described in section 6.4 be initiated some time before construction and continue for some time after completion of the project. Also, we would suggest sampling at a higher rate than 2 days per week.

O-33 Section 7: Analyses. This section included results from quantitative and qualitative methods utilized for the surfing study. In general, the numerical studies are well received. One issue that affects the overall usefulness of these analyses is how well the constructed profile fits the designed profile. What is the sensitivity of these analyses to small changes in the profile? Using GENESIS to predict profile volumes is still something we are not supportive of, but we understand it is a well developed method that has been used with good results in planning other projects in Southern California.

O-35 In section 7.2.1b, the impacts to surfing at Imperial Beach from the RBSP II project are mentioned to have lasted for 3.5 months. We believe the impacts lasted much longer than 3.5 months, given Surfrider's experience with the RBSP II surf spot monitoring program and discussions with locals. We suggest removing the "3.5 months" and just mention that there were temporary negative impacts.

O-36 In section 7.2.3, sedimentation at nearby reef breaks is discussed. We want to reiterate our stance that any situation where reef breaks are altered into beach breaks is unacceptable to us and should be avoided. The analysis describes potential impacts at 3 Solana Beach reef breaks given Alternative 2a scenarios II & IV. It is our suggestion that scenarios II & IV be avoided if there will be impacts to Solana Beach reef breaks.

O-38 Overall, we are pleased with the SELRP Surfing Study and hope that this becomes standard procedure for future beach construction projects. We appreciate the time and effort needed to produce a study of this quality and thank you for meeting with us over the past few years to


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**O-31**

The approximate length of the CBFs, as described in Figure 2-6, is 130 feet. The specific term used for the CBFs is not critical to the surfing study or the environmental impact analysis of the EIR/EIS. While many terms may be considered appropriate, the function of the CBFs is to minimize cobble migration into the new inlet.

**O-32**

The recommendations for surf monitoring are noted and will be considered during the permitting process, which will determine the final conditions of the monitoring program. Anticipated permits are identified in Table 1-3 of the EIR/EIS.

**O-33**

The sensitivity of the analyses to changes in the design profile is moderate. The need to maintain a design profile similar to the profile analyzed in the surfing study is understood; therefore, the same engineers that prepared the surfing study are involved with designing the beach fill templates. It would be important to build the beaches to closely fit the design profile.

**O-34**

Beach profile volumes would be designed to best meet the objectives of avoiding and minimizing impacts to surfing and beach use and would be finalized during the permitting process with agency input. The design team would use the best available technology to do that, which may extend beyond use of GENESIS in design decisions.

**O-35**

Language in Section 7.2.3 of the Surf Study has been modified.

**O-36**

The EIR/EIS analyzes potential impacts to reefs and identifies potential impacts. The project design would attempt to avoid and minimize impacts to reef breaks to maintain their surfing quality. Continued coordination would occur during design with Surfrider to demonstrate design progress toward that end.

**O-37**

The impacts referenced could be caused by sand placement at Fletcher Cove in the same quantity as the previous two SANDAG projects. Those projects did not cause the impacts mentioned in the Surfing Study, so that study may be conservative in predicting impacts to reefs. The City of Solana Beach needs and requests the sand, so there should be some accommodation of their need if the sand is available. Beach fill designs can be done with sensitivity in coordination with Surfrider, and monitoring of surfing impacts is proposed (PDF-73) to quantify effects. Any effects to surfing at Solana Beach reefs would be short term and temporary. Persons interviewed for the Surfing Study indicated that any effects of projects were short lived. There was some input indicating that the first SANDAG project actually improved surfing near the south end of Fletcher Cove for a time.





O-38 cont. describe the project and its potential impacts. We are grateful that you have taken many of our suggestions and applied them to the surfing study. We believe that these projects should include a strong monitoring component, and it is our hope that a robust surf spot monitoring program can be initiated before the project begins and continues through the post-construction period.

#### Summary

O-39 Surfrider is pleased to be a stakeholder in this project, and we appreciate the amount of information and coordination shared by the many participants in this project. We are hopeful that this lagoon restoration project will take place, as reducing impacts from urban runoff is core to Surfrider's mission. During the course of reviewing the Draft EIR/EIS, we became concerned that many of the impacts associated with Alternative 2A would preclude this project from proceeding. The analysis in the EIR/EIS states that overall goal of increasing health of the San Elijo lagoon can be realized with Alternative 1B, without the hard structures and increased impacts of Alternative 2A. We urge you to reconsider terming Alternative 2A as the LEDPA, and designate Alternative 1B as LEDPA instead. Furthermore, surf condition monitoring needs to be included as a design component of Alternative 1B.

O-42 Additionally, our overall concerns include construction associated with the revetment/jetty, termed Cobble Blocking Features (CBFs) in the EIR/EIS, and the fixing of Highway 101 in place in Alternatives 1A and 1B and further seaward with armor in Alternative 2A. We are concerned that fixing sections of Highway 101 in place may lead to the complete armoring of this stretch of shoreline. Alternative 2A has the potential for even further impacts due to the use of hard structures and expansion of Highway 101.

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#### O-38

The comment notes appreciation for the surf study and support for a surf spot monitoring program. The comment does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### O-39

The lead agencies look forward to continuing coordination with stakeholders as the SELRP moves forward. The comment does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### O-40

The impacts identified for Alternative 2A are clearly explained in the EIR/EIS for decision-makers to contemplate as they consider approval of the project.

#### O-41

As explained in Response to Comment O-25, the Draft EIR/EIS did not identify a LEDPA. The preliminary LEDPA is identified in the Draft 404(b)(1) Alternatives Analysis, included in this Final EIR/EIS as Appendix O.

#### O-42

The PDFs listed in Table 2-26 are applicable to all project alternatives unless otherwise noted. Surf condition monitoring as specified in PDF-73 would occur for all alternatives proposing material reuse.

#### O-43

The comment summarizes concerns detailed throughout the comment letter that have been previously addressed.



**Surfrider Foundation San Diego County Chapter**

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Best Regards,

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Co-Chairman Beach Preservation Committee

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## O-44

The attachment to the comment letter with excerpts from the March 25, 1998, Encinitas City Council Meeting is noted.

### Appendix

Excerpts from minutes of 3-25-98 Encinitas City Council Meeting.

O-44

#### DISCUSSION:

Three areas can be identified as requiring some type of protection:

##### 1. From Table Top Beach/South Cardiff State Beach to the Chart House

This stretch of beach front provides little to no protection for Highway 101. The confluence of high tides, wind and storms has resulted in beach erosion and removal of the rip rap previously placed to protect the highway. The ocean is now so close to the highway that even moderately high tides result in waves crashing over the road. This will result in the road being breached and the closure of the highway. Proposed Solution: Engineered Rip-Rap Revetment with an estimated cost of \$5.1 million.

##### 2. Cardiff State Beach

The entrance to the State Beach has been compromised and is currently closed to traffic. The adjacent Charlie's Restaurant is impacted by this same erosion. Further erosion could place the highway as well as the water and sewer lines in the highway at this location. Proposed Solution: Same as #1 and included in the cost estimate.

14. Acknowledgment to Tech, Engineering, and to Julian, Engineering, Study of Protective Measures for Coastal Highway 101 in Cardiff, Coastal Program, Engineering Services Director Acknowledgment

03/25/98 Reg. Mtg. Page 6 Mtg #14-23, 24, 25, Page 603

03/25/98 Regular Meeting

Engineering Services Director Acknowledgment presented the staff report noting that all up parts of the project could be eligible for Federal or State funding under the Federal Disaster Declaration for 98/99 events.

The staff recommendation was to direct staff to initiate project planning at a cost not to exceed \$100,000 from the General Fund reserve and pursue project approvals and financing through any available Federal, State or County sources.

Mike Anderson spoke in support of rip rap located on the northern end on a temporary basis. He also suggested the City continue to pursue additional land.

Steve Axel, representing the California Shore and Beach Preservation Association, requested the Council consider spending more than \$100,000 on this study. He said that should be included as a condition to shore up Highway 101.

Renee Jaffer, representing the San Diego County Chapter of the Surfrider Foundation, requested the Council consider raising the highway on both sides of the highway and also to consider beach nourishment. Mr. Jaffer asked the Council to attend the Surfrider meetings to hear more about the issues regarding the beach.

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SUBJECT: Comments on EIR-EIS for San Elijo Lagoon Restoration Project, 7/24/14 version

- P-1 Thank you for the opportunity to comment on the subject document. I appreciate the work that has been accomplished so far in developing the three proposed project alternatives and researching and addressing potential impacts. It would be truly remarkable if we could restore San Elijo Lagoon to a healthy tidal wetland system once again.
- P-2 I am a Fishery Research Biologist by profession, but also have an interest in birds. Over the past 24 years, I've watched as shorebird habitat in San Diego County deteriorated and disappeared, especially in our northern lagoons. My concern is that little attention is given in this document to migratory/wintering shorebirds, which spend most of the year here. Indeed, many spend up to nine months of the year (Jul/Aug-April) in the lagoon, primarily feeding on tidal mudflats-- more time than they spent on their breeding grounds and in migration. These include Western and Least Sandpipers, Dunlin, dowitchers, Red Knot, and others--- over 20 species of various sandpipers and their allies, many of which have shown declines in recent decades in North America.
- P-3 Although mention is given of the importance of mudflat habitat in SELRP presentations and in website summaries, there is a lack of information on the importance of non-vegetated mudflats for foraging migratory/wintering shorebirds in the EIR/EIS document itself. Little information is given on the loss of shorebird foraging habitat over time in San Elijo Lagoon (SEL) and in Southern California as a whole. In most cases, wintering and migratory shorebirds have very different requirements than our resident ESA listed birds, and are more highly dependent on tidal mudflats for foraging. I am assuming that migratory/wintering shorebirds using existing mudflat areas are included among other biota predicted to have significant short-term impacts from project construction (e.g. Alternative 2A, p. 391). Monthly bird counts have taken place
- P-4
- P-5
- ↓

1

#### P-1

The comment provides introductory statements; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### P-2

Section 3.6 in the EIR/EIS has been revised to include a description of nonlisted shorebirds and potential impacts/benefits to those birds.

#### P-3

The SELRP would benefit migratory/wintering shorebirds that rely on mudflats for foraging. Without the project, the existing mudflat habitat at San Elijo Lagoon would continue to rapidly convert to vegetated salt marsh. Section 2.1.2 includes a discussion of the importance of mudflat habitat, and of preventing the continued conversion of that habitat into low- and mid- marsh. Discussion regarding nonlisted shorebirds has been added to Section 3.6.

#### P-4

The Chapter 2 discussion of "Wetlands of the Southern California Coast – Historical Extent and Change Over Time" addresses the long-term loss of unvegetated intertidal habitats. While short-term impacts to mudflats during construction are considered significant, the project will ultimately create additional mudflat habitat. The focus of this analysis is on local resident species because those species would not be expected to disperse to new locations. Many migratory/wintering species may be affected, but the majority are expected to find other stopover habitat during construction. Regardless, the impact to existing mudflat habitats is considered significant.

#### P-5

Monthly bird count data were referenced in preparation of the BTR (Appendix F of the EIR/EIS) and considered in evaluation of impacts. These data were not relied upon to document number of species, as birds can be "recounted" each month. Additional reference to the monthly bird count data has been included in the expanded discussion of nonlisted shorebirds provided in the Final EIR/EIS, and a conceptual restoration plan has been prepared and is attached as Appendix Q to this EIR/EIS.

P-5 cont.	for years (Patton 2010; Patton, unpubl) but these count data have not been utilized, except for a simple listing of species. I realize that a more comprehensive restoration plan is to be prepared once a preferred alternative is selected, but at the same time, it is difficult to judge general short and long term impacts on shorebirds from the information presented in the current document.
P-6	Prey quality and quantity and/ or shorebird foraging efficiency may be directly affected by a change in mud flat characteristics resulting from restoration grading, and more information is needed on the proposed mudflat design specifics to ensure that the mudflats created will be suitable for the foraging requirements of shorebirds. Is there evidence from past studies that the proposed type of mudflat habitat we plan to create will improve/expand migratory shorebird habitat? Much may depend on whether the biological and physical characteristics of the sediment (e.g., particle size, pH, O2 levels, nutrient levels) are conducive to colonization of the right mix of invertebrates, and whether small shorebirds can find and forage efficiently on suitable mudflat prey (macroinvertebrates such as polychaete and oligochaete worms, bivalves, etc) in high enough densities and are able to feed for long enough periods to meet their needs. They might not have enough mudflat exposure time to exploit these food resources if the mudflat slope is too steep, or during construction and grading of existing mudflats. If the mudflat particle size is too large or the same diameter as their preferred prey, they may not be able to feed efficiently, and will not utilize the reconstructed mudflats for foraging. Hopefully, once the preferred alternative is chosen, information will be gathered on 1) the species groups and size classes of prey preferred by Western and Least Sandpipers, Dunlin, dowitchers and others, and important sediment characteristics associated with their colonization; and 2) the most effective mudflat characteristics, slope and elevation to recreate for shorebirds, so these birds can maximize their feeding opportunities on the reconstructed mudflats. Appendix F mentions that sampling of benthic invertebrates took place at only two water quality sites, and these data are not presented in any relation to shorebirds or shorebird foraging. This kind of baseline information is important to determine the relative effects of restoration construction on existing mudflats, and also serve as a baseline against which to compare post-restoration prey densities and mudflat exposure times for successful shorebird feeding. The only mention of impacts on shorebird foraging in the document (including appendices), is extremely brief mention in Appendix H, where Merkel & Associates (2014) conclude that foraging impacts on shorebirds at dredged material dump sites along the coast “would remain less than significant,” (but no corroborating data are provided). And since this report just discusses impacts at dump sites, it does not apply to foraging impacts on migratory shorebirds in mudflat habitat, either during restoration or after mudflats have been restored.
P-14	Additionally, I note that Alternatives 1B and 2A entail disturbance of the eastern quarter of the salt panne area in the Eastern Basin, which is included as a designated grading site (see Figs ES-2 and ES-3 in SELRP EIR-EIS Vol.1.1 7.24.14). I have observed Snowy Plovers and other shorebirds feeding on brine flies in salt panne habitat here and similar salt panne habitats in the county. Will the EIS/EIR address how construction will affect this food source for shorebirds, including Snowy Plover, both disturbance during grading, and mitigation of this feeding area in the long term?
P-15	In summary, I would like to see included in the revised document:

**P-6**

Additional discussion has been added to Section 2.4.1 to reflect comments made about the final design of the mudflats. Creating suitable foraging habitat is an objective of the project, and this design feature would provide for consideration of issues noted by the commenter including consideration of target species, particle size, nutrient levels, grading, etc. Final design would be accomplished in conjunction with the permitting agencies.

**P-7**

The study titled *Shorebirds and Benthic Fauna of Tidal Mudflats in Estero de Punta Banda, Baja California, Mexico* (Maimoe-Celorro and Mellink 2003) states that "Intertidal mudflats are the most important feeding habitats for shorebirds on their migratory routes." Restoration of mudflat habitat would provide important foraging ground for resident and migrant shorebirds and provide for a diverse assemblage of habitats, a stated restoration goal for San Elijo Lagoon. Additional discussion has been added to the EIR/EIS to support the discussion of proposed habitats for the SELRP.

**P-8**

See Response to Comment P-6.

**P-9**

See Response to Comment P-6, as well as Section 3.6. During construction and grading of existing mudflats, a portion of these habitats would be inundated and not available for foraging. Refugia established outside the construction limits would provide continued foraging opportunities for birds, as noted in the Preface to the EIR/EIS and Section 3.6.

**P-10**

See Response to Comment P-6.

**P-11**

See Response to Comment P-6. Baseline information will be collected prior to construction in order to measure wetland recovery over time. The lagoon would be maintained through adaptive management to optimize use of the mudflats by listed and nonlisted shorebirds. Information on the most effective mudflat characteristics would be reviewed in coordination with wildlife agencies to maximize foraging opportunities for birds in the lagoon.

**P-12**

Benthic invertebrate sampling would be part of the baseline survey and monitoring program, as described in the Conceptual Restoration Plan attached as Appendix Q to the Final EIR/EIS. Your comment is noted regarding sampling locations. Consideration would be given to shorebird foraging locations in future sampling efforts.

**P-13**

Information has been added to Section 3.6 on nonlisted shorebirds at San Elijo Lagoon. Monthly bird count data were used to describe the existing conditions, including documentation of nonlisted shorebirds present on-site, but the information was not analyzed in terms of trends.



- P-15  
cont.
- P-16
- P-17
- P-18
- P-19
- 1) More background information specifically on migratory/wintering shorebirds and their dependence on mudflat habitat in San Elijo Lagoon and in the County. San Elijo monthly bird count data base is only mentioned in terms of creating a bird list—have these shorebird data been analyzed in terms of trends?
  - 2) More documentation on the type and base levels of shorebird prey needed to a) better judge the relative impact of restoration on migratory and wintering shorebirds that currently utilize the area, to b) improve construction planning and minimize impacts, and c) have a baseline against which to evaluate the shorebird foraging quality of newly created mudflats. Similar studies in other California tidal estuaries might provide this information, if not available for the SEL area.
  - 3) More comprehensive and detailed descriptions of how new mudflats will be designed (specific elevation, slope, tidal exposure times, and particle size, etc. to maximize colonization of shorebird invertebrate prey), with references provided of examples of known successful tidal mudflat restoration efforts and design.
  - 4) More information on how the project will address destruction of part of the East Basin salt panne (brine fly) habitat during and after grading.
- Again, I appreciate the opportunity to comment, and look forward to following the continuing progress of the San Elijo Lagoon Restoration Project.

Sincerely,

Susan E. Smith, Fishery Biologist (Research)  
Seiurus Biological Consulting  
13716 Ruelle le Parc #E  
Del Mar CA 92014

Email: [seiurus@aol.com](mailto:seiurus@aol.com)

#### P-14

See Response to Comment F-15. Alternative 1B – Refined would minimize impacts to existing salt panne east of the current CDFW dike, as described in the Preface to the EIR/EIS. This area would not be graded or dredged, and refugia area would be available within the lagoon to provide temporary foraging opportunities for shorebirds. Design of the transitional area would enable continued existence of the salt panne into the future, and would not result in long-term impacts to foraging opportunities.

#### P-15

See Responses to Comments P-5 and P-13.

#### P-16

See Responses to Comments P-6, P-11, and P-12.

#### P-17

See Response to Comment P-6. See Response to Comment P-6. Targeted mudflat restoration is rare; one example of created mudflats is the South Bay Salt Ponds Project, which now has use by shorebirds in Pond 11 (pers. Comm. Nordby 2015). Mudflats are elevation driven, since they are dependent on a specific frequency and duration of inundation, and design at correct elevations is critical to design.

#### P-18

See Response to Comment F-15. While some of the SELRP alternatives would remove the CDFW dike and increase hydraulic efficiency of the channel adjacent to the existing salt panne, a portion of the dike would be left in place west of the salt panne as transitional area and it is anticipated that the salt panne would continue to be inundated occasionally during high water flow conditions, although it may drain more quickly. Similar sequences of inundation, drainage, and evaporation would occur, enabling the continued existence of the habitat. While the project proponent recognizes the value of the salt panne habitat, greater hydrologic flow is required in the east basin to enable fluvial flows to drain from the lagoon more efficiently. Therefore, the project proposes removal of the CDFW dike. With the restoration of mudflats provided by the restoration project, no significant impacts to foraging shorebirds are anticipated with the loss of some salt panne habitat.

#### P-19

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.



LITTORAL  
ECOLOGICAL & ENVIRONMENTAL  
SERVICES



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27 SEPTEMBER 2014

Megan Hamilton (CEQA)  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Ave., Suite 410  
San Diego, CA 92123

Subject: Comments on Draft Environmental Impact Report/Environmental Impact  
Statement for the San Elijo Lagoon Restoration Project.

Dear Ms. Hamilton:

Q-1 | I am writing to submit some comments on the above mentioned EIR/EIS. Generally, my impression is that it is a well-prepared document and contrasts very favorably with the recent draft EIS/EIR for the somewhat related 50-year shoreline protection program proposed for Encinitas and Solana Beach by the U.S. Army Corps of Engineers.

Q-2 | My preference would be for implementation of Alternative 2-A. I was particularly pleased to see that it includes plans for creation of several eelgrass beds.

Q-3 | One fact needs to be checked. ES-23 indicates that "waters off of Cardiff State Beach include popular surf spots and also support commercial fishing and kelp harvesting." Kelco left town in 2005 for Scotland. I don't think significant quantities of kelp are harvested anywhere in southern California any more. Am I incorrect?

I think the program would benefit from several changes. These are listed below:

Q-4 | 1. For its 50-year project, the USACOE has not proposed to place sand north of Beacon Beach, thus omitting the Leucadia site from its project. This beach receives sand from natural outflow and periodic dredge spoils from Batiquitos Lagoon and sand levels are generally adequate. Consequently, adding to more sand jeopardizes nearby patches of low intertidal and shallow subtidal surfgrass and turf algae on the low-relief sandstone reefs.

Q-5 |

*We haven't inherited the earth, we have just borrowed it from our children!!*

#### Q-1

The comment provides introductory statements; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### Q-2

Alternative 2A does not propose creation of eelgrass beds. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### Q-3

The reviewer is correct. There are currently no kelp processing facilities in the San Diego area. However, as described in Section 3.13, kelp beds in the vicinity of the project are still available for leasing to kelp harvesters. Language within the Executive Summary has been added to clarify the distinction between kelp processing and harvesting in the project area.

#### Q-4

See Response to Comment L-4; the City of Encinitas has confirmed a refined Leucadia site that remains proposed in the Storm Damage Reduction Project. The site is not necessarily consistent with the placement site proposed as part of the SELRP, however. Sand levels on beaches are dynamic, and vary depending on wave conditions, season, and other placement/nourishment activities. Leucadia has been identified in the RSM as a beach erosion concern area (SANDAG 2009) and therefore is considered a potential location for sand placement for the SELRP.

#### Q-5

See Responses to Comments D-4 and D-5, which discuss modeling conducted for the project and why such impacts are not anticipated.

- Q-6 2. I recommend you redirect sand designated for the Leucadia beach (ES-23) to construction of sand dunes on the San Elijo strand, west of Pacific Coast Highway, to protect PCH and the associated utilities infrastructure, Restaurant Row, and the other structures in the area. These will become increasingly threatened with predicted sea-level rise.
- Q-7 3. I can find no indication that the EIR/EIS team evaluated the feasibility of constructing sand dunes between Pacific Coast Hwy and the ocean. I understand that area historically had sand dunes. Dune structures could provide substantial protection to Restaurant Row, PCH, and the associated utilities infrastructure, as was demonstrated during Hurricane Sandy by the constructed dunes in front of five communities in New Jersey. Suitable fines and coarser sand dredged from the channels and overdredge pit could be used to construct the core and surficial layers of these dunes. A core of finer material could be mixed with and covered by cobble from the adjacent beach to provide stability and armoring and then covered with a substantial cover layer of coarser sand. The dunes could then be planted with native vegetation to provide stabilizing root systems. Such construction would probably require moving the waterline westward but based on the apparent absence of hard substrate offshore, it is unlikely infaunal assemblages living in and on the sandy habitat offshore of this beach, already disturbed by previous sand placement, would be injured significantly. These dune structures would be similar to that which already exists at Ponto and the beach south of the entrance to Batiquitos Lagoon. They could be vegetated and "restored" in a similar manner. I realize this approach has been rejected by the USACE for its proposed program for Encinitas and Solana Beach and was probably opposed for this project but it should be at least considered for this low-lying area where a wide variety of infrastructure could benefit. Absence of any discussion of this in the EIR/EIS is not acceptable. A review of past issues of Coastal News Today, for example, provides abundant evidence that dune construction is being widely employed in low-lying coastal habitats around the nation and world, despite lack of support by the USACE. The Rockefeller Foundation has been quite proactive in this regard and might be interested.
- Q-8 4. Many of the supratidal and dune species listed in these documents, several threatened, endangered, or at risk, would benefit from reintroduction of this habitat type on this beach. Recolonization of some of these species has probably occurred in the dunes at the South Carlsbad State Park.
- Q-9 5. The concept of stockpiling excess sand suitable for beach replenishment in the borrow sites off San Elijo Lagoon (SO-6) and San Dieguito Lagoon (SO-5) is a good one. Because both borrow sites were dredged by SANDAG in 2012, the important long-lived infaunal invertebrates (e.g., Pismo clams, which live up to 50 years) have already been extirpated and will not recover for many decades. These sediments are currently inhabited solely by tiny ephemeral invertebrate

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#### Q-6

Sand placement is proposed on Cardiff Beach between the ocean and Pacific Coast Highway. See Response to Comment C-16.

#### Q-7

See Response to Comment C-16.

#### Q-8

See Response to Comment C-16.

#### Q-9

The commenter's support of material placement in SO-5 and SO-6 is noted.

Q-9  
cont.

species, basically “weeds” characteristic of early stages of succession. Consequently, environmental injury would be minimal. Moreover, because these borrow sites are outside the zone of long-shore sand transport (littoral drift zone), coastal engineers have not been able to predict how rapidly they will refill following recent beach nourishment projects. Placing surplus sand in them may help maintain the basin depths at a level that could prevent them from becoming anoxic as large amounts of vegetative material exiting the lagoons and drifting in from nearby kelp and surfgrass beds accumulate in the basins and decomposes. If future dredging in these basins proposed by the USACE (50 years) is approved, it is likely they (one in the Swami’s MPA) will remain an anoxic dead zone for generations.

Q-10 | Good luck with your project, especially if you incorporate a dune system into the plans.

Sincerely,

Littoral Ecological & Environmental Services

Dennis C. Lees

cc: Meris Bantilan-Smith (NEPA Contact)  
US Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

#### Q-10

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

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## MARATHON CONSTRUCTION CORPORATION

CONTRACTORS AND ENGINEERS STATE LICENSE NO. 411338

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www.marathonconstruction.biz

September 26, 2014

Megan Hamilton  
Department of Parks and Recreation  
County of San Diego  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

Dear Megan:


On behalf of Marathon Construction Corporation I would like to express our support of the Draft EIR/EIS for the North Coast Corridor I-5 Project/San Elijo Lagoon Restoration Project. Having completed over 24 environmental restoration projects in the western US and over 3000 acres of saltwater restoration work, Marathon Construction understands the environmental sensitivities of working within coastal wetland lagoons. Having recently completed the San Dieguito Wetland Restoration Project for Southern California Edison, we feel no one better understands the local nature and impacts of this project.

Marathon also realizes that using a comprehensive and integrative approach to tasking out the three components of work, including the freeway, rail and lagoon are critical in the success of the project and minimizing the environmental impacts of this construction and enhancement.

It is our deepest sentiments that more projects of this sort are completed throughout the country. Creating vast natural greenbelts WITH public access and amenities through congested metro areas while creating/enhancing very efficient freeway and rail infrastructure are critical to the successful growth of San Diego County. We feel that Caltrans, SANDAG and all the stakeholders and resource agencies have really put their heads together and come up with a comprehensive and all-encompassing environmental document. Kudos to all of you.

Again, Marathon Construction supports the Draft EIR/EIS documents for the North Coast Corridor I-5 Project and the San Elijo Lagoon Restoration Project. This is truly a good document and good for San Diego.

Best Always,

  
Mike Furby  
President

### R-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

R-1



September 30, 2014

Meris Bantilan  
U.S. Army Corps of Engineers, Los Angeles District  
Regulatory Division, South Coast Branch  
5900 La Place Court, Suite 100  
Carlsbad, Ca 92008

Dear Ms. Bantilan:

On behalf of TC Construction Company, Inc., I would like to express our support of the Draft EIR/EIS for the San Elijo Lagoon Restoration Project.

TC Construction Company, Inc., recognizes the development and infrastructure constraints on the lagoon and surrounding areas, and understands some of the benefits associated with a number of infrastructure improvements planned by other agencies. The North Coast Corridor Public Works Project includes several projects that will improve water quality, increase biological activity, and protect and enhance the region's sensitive coastal resources.

Unless the San Elijo Lagoon is restored, we will continue to see degradation of physical and biological functions of the lagoon. As stated in the Executive Summary of the Draft EIR/EIS, the "overall CEQA goal is to protect and restore, then maintain via adaptive management", can be achieved by his project.

Our employees work hard to improve the region's quality of life, and we believe the San Elijo Lagoon Restoration Project will do just that. For these reasons, we support the EIR/EIS.

Sincerely,

Austin Cameron  
President  
TC Construction Company, Inc.

TC Construction Co., Inc., Corporate Office 10540 Prospect Ave., Santee, CA 92071  
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General Engineering Contractor  
CA 402459 Class A and C-21 | NV 0072614  
AZ ROC225328 RA and ROC225329 K-57



#### S-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

S-1

**Bradley, Lorrie**

---

**From:** Larry McMahon <lmcmahon@alliant.com>  
**Sent:** Monday, September 29, 2014 9:25 AM  
**To:** Bradley, Lorrie  
**Cc:** Lilia Robinson  
**Subject:** Support the San Elijo Restoration Project EIR/EIS

T-1 | Ms. Bradley, I would like to express our support of the Draft EIR/EIS for the San Elijo Lagoon Restoration Project.

Any questions please call

**Lawrence F. McMahon**  
Executive V.P. / Surety Manager  
Construction Services Group  
Alliant Insurance Services, Inc.  
701 B Street  
6th Floor  
San Diego, CA 92101  
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CA License No. 0C36861

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**T-1**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.



## T-2

As stated in Comment T-1, the commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore no specific response is provided.

Friedman, Kara

**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Monday, September 29, 2014 12:27 PM  
**To:** Lorrie Bradley@sdcounty.ca.gov; Kinkade, Cindy  
**Subject:** FW: Support the San Elijo Restoration Project EIR/EIS (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** Larry McMahon [<mailto:lmcmahon@alliant.com>]  
**Sent:** Monday, September 29, 2014 9:23 AM  
**To:** Bantilan-Smith, Meris SPL  
**Cc:** Lilia Robinson  
**Subject:** [EXTERNAL] Support the San Elijo Restoration Project EIR/EIS

T-2 | Ms. Bantilan, Alliant and I would like to express our support of the Draft EIR/EIS for the San Elijo Lagoon Restoration Project.

Any questions please call.

Lawrence F. McMahon  
Executive V.P. / Surety Manager  
Construction Services Group  
Alliant Insurance Services, Inc.  
701 B Street <x-apple-data-detectors://0/0> 6th Floor <x-apple-data-detectors://0/0> San Diego, CA 92101 <x-apple-data-detectors://0/0>  
D 619 849 3832 <tel:619%20849%203832>  
O 619 238 1828 <tel:619%20238%201828>  
C 619 322 6858 <tel:619%20322%206858>  
F 619 699 2110 <tel:619%20699%202110>  
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Classification: UNCLASSIFIED  
Caveats: NONE



September 29, 2014

Lorrie Bradley  
Environmental Planner  
Resource Management Division  
Department of Parks and Recreation  
County of San Diego  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

Dear Ms. Bradley:

On behalf of the 1,000+ members of the Associated General Contractors of America (AGC), San Diego Chapter, Inc., I would like to express our support of the Draft EIR/EIS for the San Elijo Lagoon Restoration Project.

AGC recognizes the development and infrastructure constraints on the lagoon and surrounding areas, and understands some of the benefits associated with a number of infrastructure improvements planned by other agencies. The North Coast Corridor Public Works Project includes several projects that will improve water quality, increase biological activity, and protect and enhance the region's sensitive coastal resources.

Unless the San Elijo Lagoon is restored, we will continue to see degradation of physical and biological functions of the lagoon. As stated in the Executive Summary of the Draft EIR/EIS, the "overall CEQA goal to protect and restore, then maintain via adaptive management," can be achieved by this project.

Our members work hard to improve the region's quality of life, and we believe the San Elijo Lagoon Restoration Project will do just that. For these reasons, we support the EIR/EIS.

Sincerely,

Bradford E. Barnum  
Vice President Government Relations

#### U-1

The commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

U-1

**V-1**

The commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

**Bradley, Lorrie**

---

**From:** Wilson, Juli <wilsonjj@vmcmail.com>  
**Sent:** Monday, September 29, 2014 9:58 AM  
**To:** Meris.Bantilan-Smith@usace.army.mil; Bradley, Lorrie  
**Subject:** Support the San Elijo Restoration Project EIR/EIS

Hello Ms. Bantilan and Ms. Bradley ~

This email serves to express my support of the Draft EIR/EIS for the San Elijo Lagoon Restoration Project. I happened to visit the area over the weekend. It's a vital part of our community and coastal landscape. We need not only to maintain but enhance the region's sensitive coastal resources. We must prevent degradation of the lagoon's physical and biological functions. The San Elijo Restoration is a critical project that will benefit the lagoon, it's inhabitants and the community.

I am an employee of a company that supplies materials to projects throughout the Country. We take an active stance in Environmental Stewardship and Social Responsibility. Construction projects and protection of our sensitive environments can and do incorporate the same goals. The protection and restoration this project achieves is an environmental necessity.

I urge your support. Thank you for your consideration.

Juli Wilson  
Vulcan Materials  
(858) 530-9463 ofc  
(619) 843-3061 cell

Build the Best. Be the Best.



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September 29, 2014

Lorrie Bradley  
Department of Parks and Recreation  
County of San Diego  
5500 Overland Avenue, Suite 410  
San Diego, CA 92123

RE: Support of Draft EIR/ EIS- San Elijo Lagoon Restoration

Ms. Bradley:

W-1 On behalf of Flatiron West, Inc. (Flatiron), a general engineering contractor based out of San Diego, I would like to express our support of the Draft EIR/ EIS for the San Elijo Lagoon Restoration Project as an integral part of the North Coast Corridor Improvement Program.

W-2 As a 25 year old business here in San Diego, many of our employees and families, including my own, have grown up here in San Diego and make it their home. Protection and restoration of our sensitive habitats, along with improved means for people to enjoy them, are critical to making our community and this highly valuable lagoon a facility for our residents to enjoy and learn from for many generations.

W-2 Flatiron recognizes the development and infrastructure constraints on the lagoon and the surrounding areas, and understands the benefits associated with integrating lagoon restoration with infrastructure improvements. The North Coast Corridor Public Works Plan includes several projects that will improve water quality, increase biological activity and protect and enhance the region's sensitive coastal resources.

Here at Flatiron, our people and their families take great pride in making our community one that has the best quality of life, and the San Elijo Lagoon Restoration Project will do just that. We support the Draft EIR/ EIS.

Regards,

A handwritten signature in blue ink, appearing to read "Jeff A. Turner", is written over a horizontal line.

Jeff A. Turner  
Vice President/ District Manager

An Equal Opportunity Employer

A HOCHTIEF Company

#### W-1

The commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

#### W-2

The commenter's information and support of the SELRP is acknowledged. It does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

**Bradley, Lorrie**

**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Tuesday, September 30, 2014 7:02 PM  
**To:** Bradley, Lorrie; Kinkade, Cindy  
**Subject:** FW: Comments\_San Elijo Lagoon\_Draft EIR/EIS (UNCLASSIFIED)  
**Attachments:** San Elijo Lagoon\_Tral Map.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: Matthew Midura [<mailto:mmidura@naisandiego.com>]  
Sent: Tuesday, September 30, 2014 5:49 PM  
To: [megan.hamilton@sdcounty.ca.gov](mailto:megan.hamilton@sdcounty.ca.gov); Bantilan-Smith, Meris SPL  
Subject: [EXTERNAL] Comments\_San Elijo Lagoon\_Draft EIR/EIS

X-1

I am a huge advocate for the Lagoon restoration and enjoy the Lagoon on a regular basis. I can view the Lagoon out my back window and am thankful for the views and wildlife it provides. That said, I have read almost every page of the 812 page Environmental Impact Report and wanted to comment specifically with respect to the trail maps for the future. I can walk to the Lagoon from my house and have found the current trail system within the Lagoon to be bifurcated and in poor shape making it extremely difficult for the public to access and easily walk. Unfortunately, in the current trail configuration it is difficult to enjoy all the Lagoon has to offer. The Lagoon is beautiful and has so much to offer but if you cannot walk it and appreciate the beauty than it is all for not.

X-2

Like so many successful parks and lagoon projects throughout the country it is important to provide adequate trails and access for the public to enjoy. The most important part of a successful trail system is to incorporate a fully integrated and connected loop. Significant value would be added to the lagoon and community through a commonsense approach of being able to park at the Nature Center and walk/hike the entire 6-7 mile loop around the Lagoon to fully experience all the Lagoon has to offer.

X-3

Specifically, on the north side of the lagoon once you finish the existing nature loop you have to go out along Manchester Rd. and walk parallel to the street (going east) which has traffic traveling at approx. 45 mph just 10 feet away. This is not only dangerous but also not the park/lagoon/ nature experience that anyone who visits the lagoon is looking for. In this area I recommend continuing the trail from the nature center loop along the existing river bank which is what was done in the nature center loop area. This trail would connect down to where the I-5 bridge is going to be built and allow you to connect over to the Solana Beach side. I have provided an attached map to show this.

In addition, in the four Restoration Alternative maps there is only 1 scenario (Alternative 1B) that connects the Nature Center loop in the opposite direction (west and south) to the trail that runs along the train track area and also connects over to the Solana Beach side. It would be beneficial in all scenarios to have the walking hiking trail connect in this direction as well.

**X-1**

The comment provides information related to the commenter's use of the lagoon trail system; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

**X-2**

The commenter's information concerning trail connections is noted; the comment does not raise a specific issue related to the adequacy of the EIR/EIS. As described in the EIR/EIS, the development of the trail system as proposed within each individual alternative has been planned with various influencing factors, such as location of sensitive biological or cultural resources, property ownership, topography, and planned future trail projects. Although it is a project objective to "Maintain or enhance public access to the lagoon and recreation opportunities that are consistent with resource protection," as stated in Section 1.2, the numerous factors listed above can limit the ability to provide continuous trail connections throughout the lagoon area, as suggested by the commenter. Impacts to trails and recreation opportunities are discussed in Section 3.1 Land Use/Recreation.

**X-3**

The commenter's information concerning trail connections is noted; the comment does not raise a specific issue related to the adequacy of the EIR/EIS. The commenter is correct that only Alternative 1B includes a trail connection from the Nature Center Loop westward to the North Rios Avenue Trail (adjacent to the railroad) in the central basin. This connection is not feasible under Alternative 2A as the northern portion of the North Rios Avenue Trail would require permanent removal for construction of the new inlet. Alternative 1A does not include the trail connection as the alternative was specifically designed to minimize construction activities and modifications within the lagoon.

X-4

Overall, I am excited to see the progress and the feedback from the community on how we move forward. I understand that there are numerous options that could play out regarding the different Alternatives. That said, in every alternative it would be important to incorporate to see a fully integrated and connected loop for the public to be able enjoy what is being done. As previously mentioned, the Lagoon is beautiful and has so much to offer but if you cannot walk it and appreciate the beauty than it is all for not.

Matt Midura

Senior Director National Accounts

[mmidura@naisandiego.com](mailto:mmidura@naisandiego.com) <<mailto:mmidura@naisandiego.com>>

License # 01826378

123 Camino de la Reina, Suite 200S

San Diego, CA 92108

Main 619 497 2255 ext. 1124

Mobile 858 740 6314

X-4

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.



X-5



X-5

The map attachment to the letter supplementing Comment X-2 is noted.

**Bradley, Lorrie**

**From:** Carolyn Glockhoff <carolyn@caro-lion.com>  
**Sent:** Monday, September 29, 2014 9:40 AM  
**To:** Meris.Bantilan-smith@usace.army.mil; Bradley, Lorrie  
**Subject:** Navigable Waters San Elijo Restoration Project Public Comment

USACE and County of San Diego -

I, as a taxpaying citizen, would like to use navigable US waterways for kayaking. There isn't any logical reason to keep the public out other than an illegal power play by the state park service. What damage can a few kayakers or canoe people do anyway? We have been waiting way too many \*YEARS\* for the "construction" or whatever initially limited access, to be completed so we may once again use these areas for kayaking. I can understand temporary safety closure for active construction, but this is not the case. If the real purpose of the no boats/canoes/kayaks ordinance is to keep county residents and taxpayers from using county and federal resources forever - that appears to be illegal under the jurisdiction of the federal government.

Carolyn Glockhoff

#### Y-1

The restriction on kayaking or other boating activities in San Elijo Lagoon is outside the scope of the SELRP. The lagoon is a state Marine Protected Area (MPA) and designated by CDFW as the San Elijo Lagoon State Marine Conservation Area; thus, activities are regulated by the California Code of Regulations, Title 14 Section 632(b)(139), which states, "(C) Boating, swimming, wading, and diving are prohibited within the conservation area." Thus, while the SELRP would maintain and enhance existing recreational opportunities in the lagoon, it is not within the project's authority or jurisdiction to modify what activities are allowed within the lagoon. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

**Z-1**

The commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

**Bradley, Lorrie**

**From:** Jerry Green <jgreen@prestigeconcrete.com>  
**Sent:** Monday, September 29, 2014 11:34 AM  
**To:** Bradley, Lorrie  
**Subject:** Support the San Elijo Restoration Project EIR/EIS

Z-1

Thank you!

**Jerry Green**  
President  
Extension: 106  
[jgreen@prestigeconcrete.com](mailto:jgreen@prestigeconcrete.com)



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.....  
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To:  
Megan Hamilton  
County of San Diego Department of Parks and Recreation  
5500 Overland Ave., Suite 410  
San Diego, CA 92123  
[megan.hamilton@sdcounty.ca.gov](mailto:megan.hamilton@sdcounty.ca.gov)

Michelle Mattson  
USACE  
LA District, Regulatory Division  
Carlsbad Field Office  
6010 Hidden Valley Rd., Suite 105  
Carlsbad, CA 92011  
[michelle.l.mattson@usace.army.mil](mailto:michelle.l.mattson@usace.army.mil)

Re: Comments on the San Elijo Lagoon Restoration Project

To whom it may concern, I would like to submit a few comments on the Restoration Project proposed for San Elijo Lagoon.

AA-1

First, to introduce myself and my interest with SEL: I have quite a bit of experience with the evolution of the San Elijo Lagoon, having moved to Solana Beach, 2 blocks from the lagoon, in Sept 1971. We immediately became involved with the lagoon as members of the San Elijo Alliance and I as a novice bird watcher participating in volunteer-conducted bird counts there. I have been a participant in monthly bird counts at SEL for many years: First during the 1973-1983 bird counts, which resulted in a publication in Western Birds magazine in 1985. Next, starting in March 2002 and on-going, with the current monthly bird count organized by Robert Patton. I am also a docent with the SEL Conservancy since 2009.

I have been involved with nature advocacy at other local lagoons. I participated in a monthly bird count at Penasquitos Lagoon (1984 - 2009). And I am now an organizer of a monthly bird count at San Dieguito Lagoon, which covers the recent Wetland Restoration project there, completed in 2009.

I have some concerns that came to me the morning after the community information meeting at Encinitas Community Center on the SEL Restoration Project. I was walking the Rios trail from Holmwood Canyon overlooking what is currently the main channel between the Lagoon inlet and the freeway under crossing.

AA-2

1) Foremost was an appreciation for the value of the now main channel, with extensive mudflats, flowing right next to the lower Rios trail. This provides one of the best opportunities, among all the local lagoons, of close-up viewing of bird activities. No binoculars required. Everyone can get good close views of ducks, waders and shorebirds. I worry about how rerouting the main channel, to a straighter, direct course along the north side of the lagoon, will impact the water flow and viewing opportunities along the lower

#### AA-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### AA-2

It is not anticipated that widening and straightening the main channel that flows beneath I-5 would reduce flows to the southern channels adjacent to Rios Trail. Hydraulic modeling indicates that flows would continue in both directions. Nor would the SELRP alternatives result in a loss of mudflat habitat substantially more than is anticipated to occur under the No Project/No Federal Action Alternative, including that visible from Rios trail. Low salt marsh dominated by cordgrass has encroached on the existing mudflats at San Elijo Lagoon and is predicted to further colonize most existing mudflat without restoration actions. One of the elements of the SELRP is maintaining or increasing mudflat habitat in the central basin to provide a balance of nesting and foraging habitat. As discussed in Section 3.1, wildlife viewing would be enhanced in the east basin with the removal of cattails and replacement with salt marsh, thereby improving line-of-sight. Wildlife viewing would also be enhanced in the west basin, with improved tidal influence and expanded mudflat areas.

- AA-2 cont. ↑ Rios trail. San Elijo Lagoon has trails with the best bird viewing opportunities. That is why so many photographers come regularly to get their fantastic bird photos.
- AA-3 2) My second concern was prompted by the observation from the upper Rios trail, of how the many deep channels crisis-crossing the central basin function at the low tide situation of that morning. The exposed steep mud banks of the channels were all being explored and probed by wading and shore birds - egrets, herons, Curlews, Whimbrels, Godwits, Willets, Least Sandpipers, Black-bellied plovers. The banks were covered with snails and crabs and their prey and predators. I worry about how much destruction of these well functioning mud banks will be caused directly, by the construction activities, and indirectly, by rerouting the majority of water flow. To what extent will the new main channel disrupt water flow through these other, well established and richly productive, water channels including the main one along the lower Rios trail?
- AA-4 3) A third concern is about the quality of the soil in newly constructed mudflats that are being proposed in the vicinity of the old sewage settling ponds. It seems that not just any soil can produce mudflats that are productive for invertebrate and bird habitat such as is seen along the well-established water channels at SEL central basin. My concern is based on observation of recently engineered wetlands that are part of the San Dieguito Restoration project. I have been conducting monthly bird counts at San Dieguito Lagoon since Jan. 2010. In spite of careful planning of the tidal drainage, and some major grading adjustments to the drainage, there are problems with these "restored" wetlands. There is still difficulty getting vegetation to grow on the mudflat created along the south shore of the river west of I5, and almost no shorebird activity there. East of the Fwy I5, the mudflats created around the San Andres trailhead look healthy and have good vegetation growth. Pickleweed has grown up along the channels and edges and Clapper rails have taken up residence in the grasses. But there is still surprisingly little shorebird activity on the extensive mudflats. I suspect that it may take years of tidal flushing to bring in the organic abundance that feeds the richly dense life found in functioning mudflats.
- AA-5 4) A fourth concern regards removal of the levee/dike between Manchester Ave and the south shore of the lagoon east of I5. I am concerned that not enough water will be retained in the eastern portion of the east basin, especially as observed from Stonebridge Mesa. Those eastern ponds are breeding habitat for Stilts, Avocets, Killdeer, Ducks, Pied-bill Grebes, etc. The birds depend on there being enough water there, for food and protection, to get them through fledging their chicks. With nothing to retain runoff water from Rancho Santa Fe, the ponds may dry up too soon for successful fledging. Surely the dike can be modified, enhanced, to allow more tidal influx, while also keeping the potential to hold back enough water to keep the ponds in water for half the summer.
- AA-6
- AA-7 ↓ In summary, my main comment is "first, do no harm" to what is good and working for wildlife at SEL: the viewing opportunities along Rios trail, and rich habitat in the south-eastern portion of the central basin, with its meandering channels and

### AA-3

Connection of the channel west of I-5 is designed to facilitate the drainage of freshwater flows exiting the lagoon; enhancement of the tidal channel network through the southern portion of the central basin would improve circulation and reduce residence times within that portion of the lagoon, enhancing water quality and maintaining salt marsh characteristics in the basin. As described in the EIR/EIS, without the project, existing mudflat habitat in San Elijo Lagoon would continue to rapidly convert to vegetated salt marsh, resulting in a permanent loss of mudflat. Recent trends in habitat conversion (as shown in Figure 2-1) show that the mudflat in the vicinity of the Rios trail has been converting in this manner. Post-restoration, however, both Alternatives 2A and 1B would result in an increase in mudflat acreage compared to existing conditions, and would help address the existing conditions that are causing mudflat habitat to convert. Removal of some of the nutrient-enriched sediments in the southern portion of the central basin would also increase sediment and water quality along channels, enhancing the benthic community and foraging base for birds. This restoration of mudflat habitat would provide important foraging ground for resident and migrant shorebirds and provide for a diverse assemblage of habitats, a stated restoration goal for San Elijo Lagoon.

### AA-4

The SELRP construction methodology would utilize a combination of low-pressure earth-moving equipment and/or dredge equipment to remove soils within wetland areas of the lagoon. This construction approach minimizes compaction of wetland soils, which can affect their ability to support wetland vegetation and invertebrate communities after restoration. Soils within proposed mudflat areas would be either native soils lowered slightly in elevation or soils slurried from the shallow excavation of the east basin and placed as a cap on the proposed overdredge pit in the central basin. In both cases, the exposed mudflat soils would consist of native marsh soils that contain native infauna that would serve as seed for a diverse benthic assemblage. Additional discussion has been added to Chapter 2 clarifying the impact of construction methods on soil characteristics.

### AA-5

The San Dieguito Lagoon Restoration Project was constructed using primarily conventional land-based equipment, such as excavators, bulldozers, front loaders, and dump trucks. Consequently, soils of the newly excavated marsh plain were subjected to compaction, which can slow establishment of marsh vegetation and colonization by invertebrates. Several areas within the restoration site are also still being refined and/or developing and would require time for vegetation to establish. Issues associated with that project are being resolved by the Coastal Commission contract scientists.

It is typical in coastal wetland restoration that development of infaunal assemblages lag behind salt marsh development, but this usually entails macrobenthic organisms, such as clams. Polychaetes and crabs and other taxa that are utilized by shorebirds are anticipated to reestablish rapidly after construction. It should be noted that natural coastal wetland systems have had thousands of years to evolve while restored systems, such as San Dieguito Lagoon, have only had a few years. The commenter is correct that it may take years for restored systems to mimic natural wetlands. The SELRP will be subject to strict success criteria established by the resource and permitting agencies during the permitting process, including standards for infaunal communities. The primary components of the monitoring program are outlined in the Conceptual Restoration Plan, attached as Appendix Q to this document. An adaptive management plan will be prepared that addresses required achievement of those criteria and may include such actions as active introduction of certain organisms.

**AA-6**

While some of the SELRP alternatives would remove the CDFW dike and increase hydraulic efficiency of the channel adjacent to the existing salt panne, a portion of the dike would be left in place west of the salt panne as transitional area and it is anticipated that the salt panne would continue to be inundated occasionally during high water flow conditions, although it may drain more quickly. Similar sequences of inundation, drainage, and evaporation would occur, enabling the continued existence of the habitat. This is not expected to result in significant impacts to listed species. However, as noted by the commenter, it could affect/change use of the area by other nonlisted wildlife species. Section 3.6 has been updated to include discussion of this change.



AA-7 ↑  
cont. | tidal mudflats, the reed-lined ponds in the far east end of the east basin. Second,  
AA-8 | realize and allow for the difficulty of engineering wetland habitat, getting the  
| grades just right for tidal flushing to form mudflats and allow nutrients to  
AA-9 | accumulate in the soil for feeding wildlife. Do not assume you can demolish all  
| that is there and then put it back together again.  
| I think an incremental approach, allowing for minimal disruption of what is  
| working, while gradually correcting the problems (i.e. overgrowth /ingrowth of  
| vegetation, especially in the western portion of Central basin), is the kindest (to  
| wildlife) and safest way to proceed.

Thank you for your attention,

Jayne Lesley

#### AA-7

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### AA-8

The expansion of tidal habitats through grading of appropriate elevations is listed as a project objective. Project grading plans have been designed to maximize benefit to habitats and resident species.

#### AA-9

The comment is noted; an incremental approach would extend the overall duration of construction, similar to restricting work to outside the breeding season. As discussed in Chapter 2 of the EIR/EIS, because many species in San Elijo Lagoon are resident species, a shorter construction duration was determined to result in less overall impacts to the functions and services of the lagoon.

**BB-1**

The commenter's support of the SELRP is acknowledged. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

**Bradley, Lorrie**

---

**From:** Nick Jansson <Njansson@soilretention.com>  
**Sent:** Monday, September 29, 2014 12:09 PM  
**To:** Meris.Bantilan-Smith@usace.army.mil; Bradley, Lorrie  
**Cc:** Jan Jansson  
**Subject:** "Support the San Elijo Restoration Project EIR/EIS"

Hello,

BB-1 | I support the project.

Thank You,

**Nick Jansson, PE, LEED AP**  
Vice President

2501 State Street P: 760-966-6090  
Carlsbad, CA 92008 F: 760-966-6099  
[www.soilretention.com](http://www.soilretention.com)



**Bradley, Lorrie**

**From:** 8050skilisa@att.net  
**Sent:** Monday, September 29, 2014 3:26 PM  
**To:** Bradley, Lorrie  
**Subject:** San Elijo

Dear Sirs:

CC-1 I cannot in any way support Option 2A for the San Elijo Lagoon Restoration project.

Objections:

CC-2 1) It costs too much to build-- A new bridge 6-8 feet higher than the existing roadway and raising the roadway to accomodate the rise is mega bucks when the existing bridge can be refitted for seismic standards.

CC-3 2) The new entry to the lagoon will be expensive to dig and to maintain no matter what it might do for the mudflats envisioned.

CC-4 3) The new entry to the lagoon will break up the sweep of a magnificent walking beach--one of the finest in Nort h County. The so called CBF's will be a "significant, permanent and unavoidable " feature of this option. Would the walking public have to climb the riprap to get to the roadway to cross the bridge? Many people are semi handicapped and would not do this...a real impact on them not only visually, but also physically.

CC-5 4) Many, many, many more people walk this beautiful beach DAILY than ever use the trails in the lagoon reserve. Let's keep this beach for the larger number of beach users. The wildlife will benefit from the other plans, and has ALL of Batiquitos Lagoon to itself since people are not allowed from the beach to the lagoon trails. Far fewer people use those trails than even use the San Elojo Lagoon re3serve trails...I use all of the above: beach, reserve trails and Batiquitos trails for running.

CC-6 5) Many people also use the current inlet to the reserve for swimming and paddling. Closing it would gradually cause it to have less and poorer water quality. What would Plan 2A do about that? It is obviously not a problem in the other plans.

CC-7 6) The cost of dredging for both 2A and 1B is too high for the benefits. Maintaining the 2A plan will be increasingly more expensive as years go on and will be very disruptive to whatever wildlife CC-8 reestablishes itself should the option be built. 1B, while significantly expensive, will be a compromise that will be less disrup[tive once initial dredging is complete. Dredging will take place near the CC-9 current inlet which is already heavily populated with humans doing whatever they are doing. In CC-10 2A the maintenance would take place in the heart of the basin where wildlife is usually "alone."

CC-11 7) While I would prefer the 1B option as less destructive while improving lagoon water quality, 1A will likely be the best compromise for all parties...the wildlife, the Corps, the San Elijo Reserve group, and most of all THE BEACHWALKING PUBLIC which NEVER goes into the reserve but exercises and walks its dogs and meditates daily on the beach between Cardiff Reef and Seaside Reef.

#### CC-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### CC-2

The purpose of an EIR/EIS is not to evaluate costs of a project or determine most efficient use of funds. Rather, an EIR/EIS is a document that describes and discloses the impacts on the environment as a result of a proposed action or project. It describes the positive and negative environmental effects of a proposed action and alternatives as well as plans to mitigate those impacts. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### CC-3

See Response to Comment CC-2.

#### CC-4

The EIR/EIS acknowledges that the new inlet and CBFs would modify the existing beach continuity and existing beach use through permanent conversion of the area to a lagoon inlet. Section 2.4.2 of the Project Description describes that the CBFs are anticipated to be slightly visible above the beach profile (approximately 1 foot exposed) in winter and then naturally buried by sand in summer. Thus, even at their maximum exposure, the CBFs would not create an overly tall or uncrossable barrier for most beachgoers. As discussed in Section 3.1.3 of Land Use/Recreation, it is assumed that, during high tides, persons walking on the beach would pass over the inlet over the new Coast Highway 101 bridge, similar to the existing tidal inlet area at San Elijo Lagoon, which is currently used for swimming and wading activities and is also inaccessible during high tides. Upon completion of the new bridge, a pedestrian walkway/bicycle path would be incorporated on the west side of the highway to allow beach users to continue to access the beach both north and south. The EIR/EIS acknowledges a significant and unavoidable impact related to public safety associated with the CBFs in Section 3.15 Hazardous Materials and Public Safety during certain tidal conditions. Visual impacts of the CBFs are identified in Visual Resources, Section 3.9.

#### CC-5

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### CC-6

The commenter is correct that the existing inlet would be expected to close and return to sandy beach. Section 3.1 of the EIR/EIS describes that the existing tidal inlet area at San Elijo Lagoon is used for swimming and wading activities and, under Alternative 2A, the existing inlet would eventually close, leaving this area as sandy beach. Essentially, the existing and new tidal inlets would switch land uses; the existing tidal inlet would close and return to fully accessible beach use, while the new tidal inlet would become a swimming and wading area with some inaccessibility during high tide. Thus, the EIR/EIS did not identify this as a significant loss of recreational resources due to the new inlet. Changes to water quality would not be anticipated with closure of the existing lagoon inlet, since the new inlet location would allow for continued and improved tidal circulation throughout the lagoon.

CC-12

8) I leave aside the discussion of what might happen to the surfing quality on 2 of North County's best reef breaks: Cardiff Reef and Seaside Reef. I also enjoy both of these and have heard that surfing used to be great up where the Dana Point Marina now is...not too good now, but I bet the surfers were all assured the surfing would not suffer...might even get better with all that sand dumped in the ocean!

Lisa Hamilton . 667 West Circle Dr. Solana Beach, CA 92075  
email: [skilisa@hotmail.com](mailto:skilisa@hotmail.com)

**CC-7**

See Response to Comment CC-2.

**CC-8**

Under Alternative 2A, maintenance dredging would occur approximately every 3 years to remove accumulated sand from the littoral cell. Dredging would be focused within the subtidal habitat inside the inlet, which would be designed as a sediment basin, and would not affect other channels, or intertidal vegetated and unvegetated areas within the lagoon. Adjacent foraging opportunities would remain available throughout dredging activities.

**CC-9**

Under all alternatives, inlet maintenance would be required on a periodic and recurring basis. Alternative 2A would require inlet maintenance at the location of the new inlet while Alternatives 1B and 1A would continue inlet maintenance at the existing inlet location.

**CC-10**

Alternatives 2A, 1B, and 1A require periodic and recurring maintenance activities as detailed in Sections 2.4.3, 2.5.3, and 2.6.3, respectively. Under Alternative 2A, some of those activities would occur within the lagoon basins, while all alternatives would require maintenance at the inlet location.

**CC-11**

The comment does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**CC-12**

Surfing impacts associated with the SELRP are specifically analyzed in Section 3.1 Land Use/Recreation, as well as a Surfing Study prepared for the project and included as Appendix N to the EIR/EIS.

**Bradley, Lorrie**

**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Friday, September 26, 2014 10:05 AM  
**To:** Bradley, Lorrie; Kinkade, Cindy  
**Subject:** FW: [EXTERNAL] San Elijo Lagoon Restoration comment (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: paul\_eva [mailto:paul\_eva@att.net]  
Sent: Friday, September 26, 2014 9:41 AM  
To: Bantilan-Smith, Meris SPL  
Cc: 'paul\_eva'  
Subject: [EXTERNAL] San Elijo Lagoon Restoration comment

To: Meris Bantilan-Smith

From: Paul and Eva Linke

Re: San Elijo Lagoon Conservancy

9/16/2014

Dear Ms. Bantilan-Smith:

- DD-1 We live on the lagoon and have, over the years, contributed money and time to the cause. We feel like we are shareholders.
- DD-2 This lagoon is a local treasure that has been left to languish for too long.
- DD-2 We are asking that you take the most aggressive action to restore San Elijo Lagoon to the highest degree possible (Alternative 2A or BETTER).
- DD-3 Besides the obvious benefits of returning San Elijo Lagoon to an earlier state, we sincerely hope that a greater percentage of salt water would help mitigate the very bad mosquito problem around the lagoon. The mosquitoes are a health hazard,
- DD-4 as well as a nuisance!
- DD-4 Also, several of the Riparian areas have been created by past and ongoing ecological damage. One such area that we are familiar with is at the end of Santa Carina street near the Santa Carina Trail Head. There, street runoff exits a storm pipe

#### DD-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### DD-2

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### DD-3

The EIR/EIS provides analysis of the current vector control concerns associated with the lagoon in Section 3.15 Hazardous Materials and Public Safety. The EIR/EIS found that implementation of Alternative 2A would result in a less-conductive vector breeding condition and reduce the public health and safety risk associated with mosquito-borne diseases. Alternatives 1B and 1A would also improve vector conditions, though to a lesser degree relative to Alternative to 2A.

#### DD-4

The commenter provides information regarding existing storm drain conditions in locations around the lagoon. Storm drain systems are the responsibility of the applicable jurisdiction, such as the City of Solana Beach or City of Encinitas and modification of these drainage systems is outside the scope of this restoration project. The EIR/EIS provides vegetation mapping of existing conditions within the lagoon, regardless of the conditions that created those habitats.

DD-4  
cont.

↑ about 100 feet below the neighborhood and has created this deep, false Riparian area that is home to many non-native plants

and a breeding area for mosquitoes. This pipe and others like it could be extended 100 to 400 feet further toward the water

and the huge gully filled.

Thank you for your attention to local opinion, Ms. Bantilan-Smith,

Paul and Eva Linke

1050 Santa Queta

Solana Beach, CA 92075

858-720-1183

[paul\\_eva@att.net](mailto:paul_eva@att.net)

Classification: UNCLASSIFIED

Caveats: NONE



**Bradley, Lorrie**

**From:** Hamilton, Megan  
**Sent:** Thursday, September 11, 2014 2:05 PM  
**To:** Bradley, Lorrie  
**Subject:** FW: Lagoon Restoration Comments

forwarded from renee

*Megan Hamilton*  
Group Program Manager/Resource Management Division  
County of San Diego Department of Parks and Recreation  
5500 Overland Avenue, Suite 410  
San Diego CA, 92123  
(858) 966 1377



**From:** Catherine Blakespear [mailto:catherine@blakespear4encinitas.com]  
**Sent:** Thursday, September 11, 2014 11:42 AM  
**To:** Hamilton, Megan; meris.bantilan-smith@usace.army.mil  
**Subject:** Lagoon Restoration Comments

Hi,

EE-1 Thank you for accepting comments on the San Elijo Lagoon Restoration Project. As a lifelong resident, frequent runner in the lagoon, and member of the Lagoon Conservancy, I was very interested in the presentation that I attended earlier this month in Encinitas. I have two suggestions:

EE-2 1. Please consider including a bike path along the rail corridor as part of the restoration project, at the same time the rail road corridor will be under major construction because of double tracking around 2017. The Coastal Rail Trail is being constructed throughout the rest of the county in the railroad right of way. This would provide a beautiful, scenic bike path for all to enjoy. Now is the perfect opportunity to combine the goals of these projects.

EE-3 2. Please consider in general trying to increase connectivity to the lagoon trails from Encinitas. There is no feasible way to access the lagoon trail system from the beach, walking or using a bike. The nature center is disconnected from the trail system and only has a small loop available for runners, walkers or birders. Manchester is narrow, with speeding cars and not friendly for bikers or walkers. The only practical way to get to the nature center is to drive, and the only way to access the trail system from the coast is to park at the Seaside parking lot, run across the 101, and then trespass across the railroad property. A trail along the lagoon that is grade-separated from the road and crosses to the other side would be ideal.

EE-4 Thank you for considering increasing access for people to enjoy and appreciate this lovely natural feature on our city's southern border.

1

#### EE-1

The comment provides introductory statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### EE-2

Trail improvements associated with future rail corridor projects or the Coastal Rail Trail are out of the scope of this project; however, the SELRP would work in cooperation with agencies proposing rail corridor projects through the lagoon (such as NCTD or SANDAG) to coordinate and integrate new trails.

#### EE-3

The commenter's description of trail access is noted. As described in the EIR/EIS, the development of the trail system as proposed within each individual alternative has been planned with various influencing factors, such as location of sensitive biological or cultural resources, property ownership, topography, and planned future trail projects. These factors can be limiting in the ability to provide continuous trail connections throughout the lagoon area, as suggested by the commenter. Impacts to trails and recreation opportunities are discussed in Section 3.1 Land Use/Recreation.

#### EE-4

The comment provides closing statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

Best,  
Catherine

Catherine S. Blakespear  
For Encinitas City Council (Nov. 2014)  
<http://www.blakespear4encinitas.com>  
<https://www.facebook.com/blakespear4encinitas>

**Bradley, Lorrie**

**From:** Jeffrey Petit <jfpetit@sbcglobal.net>  
**Sent:** Friday, September 26, 2014 12:47 PM  
**To:** Bradley, Lorrie  
**Subject:** Fw: Subject: San Elijo Retoration Project Public Comment

Public comment and input submitted to San Diego County, copy to San Diego County/  
county official(s)

including a "request/demand" to "Cease and Desist" from violations of federal law and violations of  
public and individual citizen rights to access and use "Navigable Waters of the U.S." at San Elijo  
lagoon, inlet, Poway Creek and related sites such as the San Dieguito and San Diego rivers.

On Friday, September 26, 2014 12:38 PM, Jeffrey Petit <jfpetit@sbcglobal.net> wrote:

To: USACE Los Angeles District-Carlsbad CA Field Office

From: Jeffrey F. Petit Commander U.S. Navy (Ret.)

FF-1 In reference to the San Elijo Lagoon and waterways restoration project, impact report and  
environmental impact statement the following public comment/input is submitted as of this date  
September 26, 2014.

FF-2 The state of California Department of Fish and Wildlife, state of California Department of Parks and  
Recreation, San Diego County Department of Parks and Recreation, City of Encinitas, and  
ecological/environmental groups with an active closure and access denial agenda/policy who  
effectively act in close control and authority over of the San Elijo waterways and inlet as well as the  
watershed and surrounding lands at this site have been and remain in apparent violation of federal  
law and rights of public access to and use of "Navigable Waters of the United States". They have  
effectively and under the penalty of state, municipal, and county law and regulation prohibited access  
to and navigation on "Navigable Waters of the U.S." These actions and policies are an apparent  
violation of typical current and anticipated U.S. government federal/USACE permits and Title 33 U.S.  
Code including the U.S. Rivers and Harbors Act and U.S. Clean Water Act involving these and other  
nearby navigable waterway areas.

These actions violate federal law and both public and individual citizen-taxpayer rights of use and  
access on "Navigable Waters of the U.S." for navigation and other lawful purposes.

FF-3 Signs are posted with "no canoeing symbols" and publicly posted statements, documents and  
policies, local law and regulation prohibiting all boating/navigation including even low impact  
navigational activities such as canoeing and kayaking are present and actively enforced while this is  
known to breach the level of authority these agencies have in terms of controlling and/or prohibiting  
navigation of/on "navigable waters of the U.S. at this and closely related nearby waterways/sites.

FF-4 State of California, San Diego County and municipal officials and other taxpayer funded personnel  
including those with armed law enforcement status and authority have been and remain in violation of  
federal law and public and individual citizen rights of access to and use of "Navigable Waters of the

#### FF-1

The comment provides introductory statements; it does not raise a specific issue related to the  
adequacy of the EIR. Therefore no specific response is provided.

#### FF-2

The lagoon is a state Marine Protected Area (MPA) and designated by CDFW as the San Elijo  
Lagoon State Marine Conservation Area; thus, activities are regulated by the California Code of  
Regulations, Title 14, Section 632 which state, "(C) Boating, swimming, wading, and diving are  
prohibited with the conservation area." The comment does not raise a specific issue related to the  
adequacy of the EIR/EIS; therefore, no specific response is provided.

#### FF-3

See Response to Comment FF-2 regarding the state regulation, which restricts activities within the  
lagoon due to its designation as an MPA. The comment does not raise a specific issue related to the  
adequacy of the EIR/EIS; therefore, no specific response is provided.

#### FF-4

As noted in Response to Comment FF-2, boating activity in the lagoon is restricted by California  
Code of Regulations, Title 14, Section 632. The comment does not raise a specific issue related to the  
adequacy of the EIR/EIS; therefore, no specific response is provided.

- U.S." at the San Elijo and related local area/southern California sites such as the San Dieguito River and inlet, Penasquitos Lagoon-River and inlet, San Diego River and inlet, etc..
- FF-4 cont. These agencies and individuals responsible for these policies and acts should have current USACE permits suspended/revoked and further permits denied/prohibited unless and until they fully comply with federal law and permits involving these waterways, inlets and watersheds under federal jurisdiction and actually recognize and allow the public and individual citizen rights of access to and use of "Navigable waters of the U.S". at these sites. They should be held accountable under both the threat of criminal and civil penalties prescribed under federal law.
- FF-5 Additionally these agencies and environmental/ecological groups have a demonstrated history of misrepresenting what they actually do and intend to do to both federal agencies such as the USACE and the general public, act in deceptive manners/practices and fraudulent practices. They have acted in collusive practices and used private citizen/organization contributed, non-taxpayer fund money contributed to state and local public agencies to support acts and actions which in many cases result in violations of federal law and public rights. There are specific and varied examples of this which could be submitted and described in detail.
- FF-6 While recognizing the need to maintain and potentially improve waterways, estuaries and inlets along with other navigable waters the laws of the United States must be complied with and the rights of others including the general public and individual citizens must be fully respected and restored in actuality not by false acts of compliance or limited ineffectual measures. A plan to fully restore and open up access to and navigation on these "diverse and dispersed waterways" including "Navigable Waters of the U.S" to such low impact activities such as canoeing and kayaking is both required under federal law and would conform to a reasonable policy of access and use of these waterways and resources. This would disperse both the numbers of the public navigating and accessing any one particular site in Southern California-San Diego County and act to minimize or mitigate/eliminate any serious concerns over adverse environmental impacts.

Jeffrey F. Petit  
Commander U.S. Navy (Ret.)  
Del Mar, CA

M (619) 990-9688

#### FF-5

The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

#### FF-6

As detailed in Response to Comment FF-2, the restriction on kayaking or other boating activities in San Elijo Lagoon are dictated by the California Code of Regulations and are outside the scope of the SELRP. Thus, while the SELRP would maintain and enhance existing recreational opportunities in the lagoon, it is not within the project's authority or jurisdiction to modify what activities are allowed within the lagoon. The comment does not raise a specific issue related to the adequacy of the EIR/EIS; therefore, no specific response is provided.

Bradley, Lorrie

**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Monday, September 29, 2014 7:59 AM  
**To:** Bradley, Lorrie; Kinkade, Cindy  
**Subject:** FW: [EXTERNAL] Comments on San Elijo Lagoon Restoration Project, EIR-EIS 7/24/14 (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

**From:** pnell@sbcbglobal.net [mailto:pnell@sbcbglobal.net]  
**Sent:** Monday, September 29, 2014 7:40 AM  
**To:** megan.hamilton@sdcountry.ca.gov; Bantilan-Smith, Meris SPL  
**Subject:** [EXTERNAL] Comments on San Elijo Lagoon Restoration Project, EIR-EIS 7/24/14

Megan Hamilton (CEQA)  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Ave., Suite 410  
San Diego, CA 92123

Meris Bantilan-Smith (NEPA Contact)  
US Army Corps of Engineers, Los Angeles District Regulatory Division, South Coast Branch  
Attn: SPL-2009-00575-MBS  
5900 La Place Court, Suite 100  
Carlsbad, CA 92008

Subject: Comments on EIR-EIS for San Elijo Lagoon Restoration Project, 7/24/14

- GG-1 Thank you for the opportunity to comment on the subject document. I am very interested in the the impact the project will have on bird populations. The different alternatives are comprehensive in their attention to ESA listed birds.
- GG-2 However, many non-ESA listed species of shorebirds pass through during migration and /or spend the winter months in the mudflat and salt panne habitats of the lagoon. In Alt. 2A, pages 3.6-43 and 3.6-44 and Table 3.6-5, concerns are stated re: both short term and possibly permanent losses to Salt Panne and Coastal Salt marsh habitats which support these populations. In the revised document I would welcome a more thorough discussion of non-vegetated mudflat habitats, including how they will be impacted short term and how they will be improved in the long term in all three alternatives.
- GG-3

Sincerely,

1

### GG-1

The comment provides introductory statements; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

### GG-2

It is acknowledged that mudflat and salt panne habitats are important habitats of bird species that utilize the lagoon. Additionally, a study titled *Shorebirds and Benthic Fauna of Tidal Mudflats in Estero de Punta Banda, Baja California, Mexico* (Maimoe-Celorro and Mellink 2003. Bulletin of the Southern California Academy of Sciences, Vol. 102, issue 1) states that "Intertidal mudflats are the most important feeding habitats for shorebirds on their migratory routes." Restoration of mudflat habitat would provide important foraging ground for resident and migrant shorebirds and provide for a diverse assemblage of habitats, a stated restoration goal for San Elijo Lagoon.

### GG-3

The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a complete analysis of short- and long-term impacts of unvegetated mudflat habitats for all three build alternatives. As shown in Table 3.6-5 of the EIR/EIS, implementation of Alternative 2A would result in greater than 50 percent temporal loss of sensitive habitats that would be significantly impacted by construction, including coastal salt marsh (low- and mid-), open water, salt panne/open water, and tidal mudflats. As shown in Table 3.6-9, implementation of Alternative 1B would also result in greater than 50 percent temporal loss of sensitive habitats. Alternative 1B – Refined would result in greater than 50 percent temporal loss of open water and mudflats. The duration in which vegetation may be temporarily lost would vary based on the basin, type of impact (dredged/graded or inundated), species tolerance to inundation, and recovery period. This length of impact may be as short as 6 to 12 months for habitats inundated in the west basin, due to the shorter duration of inundation (estimated at 3 months) and may be greater than 5 years for habitats that would be grubbed and graded during construction. The adaptive management program for the project, as described in Section 2.11, includes measures for monitoring and maintenance activities to aid in the recovery of inundated vegetation communities.

Tables P-6 and 3.6-6 of the EIR/EIS provides long-term impacts in vegetation habitats (5 to 10 years post-restoration) for all alternatives. Within 5 to 10 years following restoration, habitats are expected to substantially recover and mature. The total acreage of mudflat habitats within the lagoon would increase in size to approximately 102 acres for Alternative 2A, approximately 71 acres for Alternative 1B and approximately 66 acres for Alternative 1B – Refined. Mudflat and mid-salt marsh habitats would increase due to conversion of salt panne, fresh/brackish marsh, open water/freshwater marsh, and habitats that currently occupy the transition zone. The total acreage of mudflat habitats would decrease to 25 acres for Alternative 1A and 29 acres if no action was performed. A complete breakdown of impacts by basin is provided in the Biological Resources Technical Report included in Appendix F.

P. Gretchen Nell  
1076 Hymettus Avenue  
Encinitas, CA 92024

Classification: UNCLASSIFIED  
Caveats: NONE



**Bradley, Lorrie**

**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Monday, September 29, 2014 11:32 AM  
**To:** Bradley, Lorrie; Kinkade, Cindy  
**Subject:** FW: [EXTERNAL] San Elijo Lagoon Restoration Project (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

-----Original Message-----

From: John Metzger [mailto:johnmetzger50@gmail.com]  
Sent: Monday, September 29, 2014 11:22 AM  
To: megan.hamilton@sdcounty.ca.gov; Bantilan-Smith, Meris SPL  
Subject: [EXTERNAL] San Elijo Lagoon Restoration Project

To all whom it may concern,

- HH-1 1. Spending any money on large changes to the lagoon is a waste. \$80 million of waste is a lot. How can we justify the outrageous expense with the current economy and fiscal problems the state faces? The money needs to be spent on transportation projects such as improving the rail corridor and public transit which would be of greater benefit to our coastal ecosystems. Why is money being diverted from transportation to unnecessary projects? The lagoon is fine as is. Nothing needs to be changed except keeping more human intervention from impacting the lagoon. It is what it is - today. Trying to turn the clock back a hundred or five hundred or a thousand years is pointless. The lagoon has evolved to what it is today, yes because of man made structures like 101, railroad, I-5, and the dike, which are now part the "habitat", to support the wildlife as it exists today, which is precisely the wildlife it is meant to preserve. Besides birds, what happens to the rabbits, squirrels, snakes, deer, turtles and coyotes? What is the impact of each and every proposed change on each and every species of wildlife in the lagoon? How will the loss of those species that depend on fresh water affect human populations that enjoy the fresh water species of birds?
- HH-2
- HH-3
- HH-4 2. How will pedestrians transverse the lagoon from south to north as they do now on the "dike" (or weir or that ever it is called this day) if the dike/weir is removed? Will there be an alternate bridge installed for a south north path? If not why not? If so, how much will this cost? Will bicycles be permitted on lagoon trails? If so how will safety be addressed if the proposed bicycle use is permitted on lagoon trails?
- HH-5
- HH-6 3. The tidal flushing as happens on the west side is - god awful. At low tide the mud flats stink and are flat out ugly. If that is restoration nobody needs it. How will home owners be compensated for the loss of property values and pleasant views? Is the Conservancy prepared for the lawsuits that might ensue? Have funds been set aside for such a contingency? How will the current water in the east side lagoon be maintained? I believe the entire lagoon was deeded to the state as a game preserve as part of a deal allowing the San Elijo housing developments. At some point in the planning there was an obvious intent to connect Santa Helena to Manchester/El Camino Real. That's why Santa Helena is as wide as it is. They planned for major traffic. In any event the east lagoon at some point was private property used by a duck hunting club. So what was the intent of the land grant to the state/county? Are there any deed restriction that the SELRP violates? Was there a stipulation that the man made circular lake with an island be forever maintained? How will the proposed changes impact the water in that area? Will it become a mud flat at low tide like the west side areas?
- HH-7
- HH-8

1

**HH-1**

The purpose of an EIR/EIS is not to determine the most efficient use of funds. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**HH-2**

The intent of the project is not to return to a condition matching a historic time period, but to create habitats appropriate for the project and provide a balanced habitat distribution of both vegetated and unvegetated intertidal habitat types. Specific habitat distribution and balance have been designed with a focus on the specific needs of the species within San Elijo Lagoon.

**HH-3**

The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a detailed analysis of the potential temporary and permanent impacts to birds, including threatened and endangered species, during construction and operation of each SELRP alternative. The EIR/EIS acknowledges potentially significant and unavoidable impacts to sensitive habitats, , as well as impacts to avian species breeding and foraging due to construction noise. Section 3.1 Land Use/Recreation cites nature viewing and bird watching as recreational opportunities in the lagoon. It is anticipated that wildlife viewing would be enhanced in the east basin with the removal of cattails and replacement with salt marsh, thereby improving line-of-sight. Wildlife viewing would also be enhanced in the west basin, with improved tidal influence and expanded mudflat areas.

**HH-4**

It is correct that under Alternatives 2A and 1B, the existing Dike Trail providing north-south access across the lagoon would be removed. In Alternative 1A, the dike and associated trail would remain with two new openings to allow tidal and fluvial connections. As described in Section 3.1.3 of the EIR/EIS, north-south trail access across the east basin from Manchester Avenue to the Santa Inez Trail would be restored through efforts underway by Caltrans as part of the construction of an enhanced trail connection associated with the I-5 North Coast Corridor Project as shown in Figure 3.1-1. Caltrans would construct an enhanced trail connection consisting of streetscape improvements and trail improvements that connect into the existing lagoon trail system. Caltrans and SANDAG would connect the north and south sides of the lagoon via a new bike/pedestrian suspended bridge adjacent to the I-5 highway bridge.

**HH-5**

The SELC website states that bicycles are prohibited on all trails within the Reserve. The SELRP does not propose to change or modify the permitted use of trail systems throughout the reserve. Current regulations would remain.

**HH-6**

Although the visual character of the project site would change substantially from existing conditions during the construction phase, as discussed in Section 3.9 Visual Resources, such activities would be temporary. As vegetation in the lagoon becomes reestablished at the new elevations/grade, the visual character of the lagoon would become similar to the existing pre-construction conditions. Odors associated with the flushing of the lagoon are a natural occurrence that currently exists within the lagoon system, although improved circulation within the lagoon could reduce associated odors

compared to existing conditions.

Section 3.13 Socioeconomics/Environmental Justice of the EIR/EIS describes the economic output as a result of lagoon restoration to be beneficial, although slight, as community members and visitors would have opportunity to witness and enjoy a more dynamic lagoon ecosystem. Therefore, impacts on existing regional population and associated housing, employment rates, and regional economy would largely remain unchanged as a result of the lagoon restoration.

#### **HH-7**

Current and applicable land ownership is detailed in Section 3.1 of the EIR/EIS. As discussed in Section 3.1 Land Use/Recreation, the SELRP would not change the existing nature of the lagoon or substantially alter existing land uses in surrounding areas. The project area is identified in City and County of San Diego planning documents as an area to be preserved and protected as open space and passive recreational use. Specifically, it is listed as an Ecological Resource/Open Space/Park by the City of Encinitas General Plan and LCP LUP (City of Encinitas 1989, amended 2003), a Resource Conservation Area in the County of San Diego's San Dieguito Community Plan, an Ecological Reserve by the California Department of Fish and Wildlife, and a State Marine Conservation Area under the Marine Life Protection Act. Furthermore, the Solana Beach General Plan and the LCP LUP encourage and support efforts to restore San Elijo Lagoon in coordination with applicable resource management agencies (Policy 3.59) (City of Solana Beach 2014). No deed restrictions would be violated by the project. The SELRP would be consistent with applicable federal, state, and local regulations, laws, plans, and programs. The project activities would be regulated by LCPs implemented by local agencies. Finally, there are no stated stipulations regarding the freshwater/brackish marsh in the east basin or its surrounding waters.

#### **HH-8**

It is assumed the comment is referring to water and future conditions in the east basin. The conditions of the east basin would vary depending on the alternative selected. The tidal range of water in the east basin could increase anywhere from approximately 1.5 to 4 feet (Table 3.2-1). The SELRP would improve the ability of the lagoon to drain freshwater currently impounded in the east basin and improve tidal influence. A wide variety of habitats, including marsh habitats and scrub habitats, along with some areas of tidal mudflats, would occur in the east basin after restoration and would depend on the alternative selected.

#### **HH-9**

Portions of the Solana Hills Trail along the edge of the lagoon just west of I-5, as shown in Figure 3.1-1, would have access restricted for approximately 12 months during construction. However, the upland portions of the trail would not be impacted and access along the east side of the central basin would be maintained. The trail would be returned to its original condition and access would be restored to pre-project conditions. Additionally, as stated in the EIR/EIS, Caltrans and SANDAG would connect the north and south sides of the lagoon via a new bike/pedestrian suspended bridge adjacent to the I-5 highway bridge. Additionally, an improved trail segment underneath the I-5 highway bridge would provide better east-west movement (SANDAG 2013). This improved segment along the south side of Manchester Avenue would include a new pedestrian-friendly streetscape linkage to the proposed pedestrian bridge that would be suspended under the west side of I-5. This

- HH-9 | 4. What is the plan to improve the running path under the freeway bridge to connect the east and west trails which are used by many runners? Will the current unsafe, ad hoc, foot bridges be replaced with safer structures making the running paths safer and more useable?
- HH-10 | 5. How will relocating the polluted, bacteria laden outflow affect the beach and surf to the south? Does the City of Solana Beach have any interest in stopping the polluted waters from being relocated closer to our beach? Does it impact Fletcher Cove? How will the loss in property values affect the City of Solana Beach's tax revenue? Or the school districts? Do the local realtors have concerns about the negative impacts these proposed changes will have?
- HH-11 | 6. Why will this destruction of the lagoon turn out to be any less awful than the "mitigation" effort by the Fair grounds in Del Mar?
- HH-12 | 7. How is damaging the lagoon as the SELRP propose "conversing it"? Is the Conservancy in danger of being sued or criminally prosecuted for fraud or misrepresentation with their fund raising pretending to protect the lagoon while plotting to destroy it?
- HH-13 | 8. I know I bought our property with the expectation that the lagoon could not be "developed" which would include being "developed" by misguided do-gooders. No matter how you cut it changing the lagoon by massive man made construction projects to "restore it" is man made development, not restoring nature. What is natural is leaving it as is to evolve as it has. How will more man made intervention in the lagoon ecosystem be anything but more man made change to an environmentally sensitive area that already suffered from too much of man's intervention? More changes will not "restore" the lagoon to what it once was. How will this project not harm the existing fresh water species in the lagoon, which today is what is "natural"?
- HH-14 | 9. Isn't this just one more boondoggle by the Conservancy to waste tax payer money on a totally unnecessary project? I'm sure that better use of \$80 million dollars can be found.

John Metzger  
912 Santa Hidalgo  
Solana Beach, CA 92075

Classification: UNCLASSIFIED  
Caveats: NONE

bridge would extend north to south and would connect to a new trail under I-5 on the south side of the lagoon that would provide connection to existing trails on the west and east sides of I-5 (Santa Inez Trail). This would serve to complement and enhance the existing trail system within the lagoon and enhance coastal access. No permanent loss of recreational uses would occur.

#### HH-10

San Elijo Lagoon is a 303(d) listed waterbody for various water quality parameters, including eutrophic conditions, bacteria, and sedimentation. One of the Physical Objectives of the SELRP as described in Section 1.2 of the EIR/EIS is to improve water quality by restoring tidal circulation and reducing high bacteria counts. As detailed in Section 3.4 Water and Aquatic Sediment Quality, long-term water quality impacts would not result and water quality conditions are anticipated to improve to varying degrees dependent upon the alternative selected. This improved water quality would also apply to water exiting the lagoon through the relocated inlet. See Response to Comment O-37 regarding impacts to surf conditions at Fletcher's Cove.

#### HH-11

As discussed in Section 3.1 Land Use/Recreation, upon completion of the SELRP, the enhanced and restored wetland would continue to be compatible with adjacent residential uses and the nearby beach and commercial areas. Lagoon restoration would also indirectly benefit surrounding land uses by improving public passive recreational use and educational opportunities through enhancement of the habitat supporting the abundant flora and fauna species within the lagoon, the main attraction for lagoon visitors. Additionally, as discussed in Section 3.13 Socioeconomics/Environmental Justice, economic output as a result of lagoon restoration is anticipated to be beneficial, although slight, as community members and visitors would have a new opportunity to witness and enjoy a more dynamic lagoon ecosystem. Therefore, impacts on existing regional population and associated housing, employment rates, and regional economy would largely remain unchanged as a result of the lagoon restoration.

#### HH-12

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### HH-13

The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a detailed analysis of the potential temporary and permanent impacts to birds, including threatened and endangered species, during construction and operation of each SELRP alternative. The EIR/EIS acknowledges potentially significant and unavoidable impacts to sensitive habitats, , as well as impacts to avian species breeding and foraging due to construction noise. The intent of the restoration project is not necessarily to restore or re-create the lagoon to a certain or specific historic condition, but to restore the lagoon's declining condition to a healthy and well-functioning hydraulic and ecologic system that can be maintained through adaptive management.

#### HH-14

The purpose of an EIR/EIS is not to determine the most efficient use of funds. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**Bradley, Lorrie**

**From:** Nancy Tomich <nancytomich@gmail.com>  
**Sent:** Sunday, September 28, 2014 7:19 PM  
**To:** Bradley, Lorrie  
**Cc:** Roberts, Dave  
**Subject:** Fwd: San Elijo Lagoon Restoration

Ms. Bradley,

II-1 I am forwarding this comment because the contact listed on the county's handout at meetings concerning San Elijo lagoon seems to have disappeared. My original message was returned. I do not think you can enforce a September 29 deadline when there was misdirection regarding submission of comments.

Thank you,  
Nancy Tomich Zapp  
San Diego

Sent from my iPad

Begin forwarded message:

**From:** Nancy Tomich <nancytomich@gmail.com>  
**Date:** September 28, 2014 at 6:04:59 PM PDT  
**To:** [megan.hamilton@sdcounty.ca.gov](mailto:megan.hamilton@sdcounty.ca.gov), [meris.bantilan-smith@usace.army.mil](mailto:meris.bantilan-smith@usace.army.mil)  
**Subject:** San Elijo Lagoon Restoration

To All Whom It May Concern:

II-2 I am a regular frequenter of San Elijo Lagoon, which I consider to be a treasure that allows us to connect with nature in the busy, crowded North Coast area. I have several concerns about the proposed restoration:

II-3 *• Is such a wide-sweeping restructuring necessary?* If the concern is to enhance the flow from inland to coast, why not enlarge the conduits in the current dike rather than removing it totally? I have photographer friends who are most dismayed at the potential loss of a wonderful platform for photographing bird life in the lagoon. I personally cherish the access that the dike provides.

II-4 *• The effect on wildlife from the proposed "restoration" would be catastrophic.* Bird and other wildlife would be sadly displaced during dredging and may never return. Birds that thrive in the fresh water that comes into the eastern part of the lagoon would no longer have proper habitat. The whole character of the lagoon would change, potentially endangering some threatened species.

II-5 To quote from the lagoon Conservancy: "Several sensitive, threatened, and endangered species rely on San Elijo Lagoon Ecological Reserve. More than 105 species of concern have been documented in the reserve, including 33 of the 81 to 93 species that breed around the lagoon. The federally endangered Brown Pelican roosts and feeds regularly in the lagoon, the Light-Footed Clapper Rail is resident, and the California Least Tern nests, forages, and roosts around the lagoon each summer. Least Bell's Vireo presence has increased in recent years with nesting along Escondido Creek. The federally

**II-1**

The comment is noted. The County acknowledges that the email address provided early in the public review process for comment submittal was unavailable at the very end of the public review period due to staffing changes. Updates to the submittal information were made available as soon as the issue was identified. Late submittals due to email difficulty caused by the email address change are being considered by the County. The County provided multiple methods of submitting comments in addition to email submittal, including via standard mail and at public meetings, and submittal via email to the NEPA lead agency was available. The County made every effort to provide an adequate public review period, including the extension of the time period from a standard 45-day review to a 60-day review.

**II-2**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**II-3**

The EIR/EIS provides a range of action alternatives that include varying levels of restoration activities, ranging from the most intensive under Alternative 2A and the most minimal activities under Alternative 1A. As suggested by the comment and described in Section 2.6 of the Project Description, under Alternative 1A the existing CDFW dike would be left in place, but two new channels would be created through it to allow improved tidal and fluvial connections. Under this alternative, access along the dike would remain. Discussion of access throughout the lagoon via existing and proposed trails is included in Section 3.1 Land Use/Recreation.

**II-4**

The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a detailed analysis of the potential temporary and permanent impacts to birds, including threatened and endangered species, during construction and operation of each SELRP alternative. The EIR/EIS acknowledges potentially significant and unavoidable impacts to sensitive habitats, , as well as impacts to avian species breeding and foraging due to construction noise.

**II-5**

The commenter provides information related to bird species known to frequent the lagoon. However, the information does not raise a specific issue related to the adequacy of the EIR/EIS. The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a detailed analysis of wildlife and birds associated with the lagoon and potential impacts to those species.

II-5  
cont.

threatened Snowy Plover, California Gnatcatcher, and state endangered Belding's Savannah Sparrow nest and are present throughout the year. The recently delisted Peregrine Falcon is a regular visitor. Bald Eagles and Willow Flycatchers forage in the reserve occasionally. In the past, Wood Stork, Black Rail, Sandhill Crane, and Bank Swallow have been documented in the lagoon, and cactus wrens were once abundant in adjacent sage scrub."

II-6

• **The cost is outrageous.** So many places along the North Coast could be helped with \$80 million. I urge you to consider the lowest-impact option for San Elijo and to spread the largesse from mitigation to other lagoons as well.

Thank you,  
Nancy Tomich Zapp  
San Diego

## II-6

The purpose of an EIR/EIS is not to evaluate the costs associated with a project, but rather to provide an unbiased environmental assessment of the project and its alternatives as proposed. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

Sept. 11, 2014

Megan Hamilton (CEQA)  
County of San Diego  
Department of Parks and Recreation  
5500 Overland Ave. Suite 410  
San Diego, CA 92123


INRE: San Elijo Lagoon Restoration Draft EIR/EIS

I have read most of the draft EIR/EIS and I have the following comments:

- JJ-1 | 1. I like the option 2A as it seems to give better water exchange, which would improve the fish habitat. I note that it will impact the view and change the surf somewhat, but my observation is that most surfing happens South of the proposed opening, North of the reef.
- JJ-2 | 2. Information about the bridge on the Coast Highway and about the increase in height of both the road and the railroad track does not appear to be addressed other than refer to CalTrans. I would hope that the plans are for a significantly long bridge under the tracks to allow for improved water flow.
- JJ-3 | 3. Historically up into the 60's one could catch Halibut off the bridge on the Coast highway. I have observed the many fish seen in the San Dieguito Lagoon and would hope that the completed San Elijo Lagoon restoration would also greatly increase the fish habitat.
- JJ-4 | 4. Improving the water exchange in the front basins would be a great improvement, particularly in the low rainfall times such as this.
- JJ-5 | 5. Improving the mosquito control and fire fuel levels in the lagoon is also an improvement.
- JJ-6 |

Thank-you for providing this opportunity to view the Draft EIR/EIS.

Regards,

  
Ann Pogue  
258 Barbara Ave.  
Solana Beach, CA 92075

Cc: San Elijo Conservancy  
US Army Corps of Engineers

#### JJ-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### JJ-2

The comment related to the improvement of fish habitat is addressed in Biological Resources, Section 3.6 of the EIR/EIS. The comment related to impacts of views is addressed in Visual Resources, Section 3.9 of the EIR/EIS. The commenter provides information on their observation of surfing locations, and surfing is addressed in Land Use/Recreation, Section 3.1 of the EIR/EIS. These comments do not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### JJ-3

The comment is noted. The SELRP includes design of a new bridge to span the proposed new inlet under Alternative 2A and analyzes retrofitting of the existing Coast Highway 101 bridge, and environmental effects are evaluated in the EIR/EIS. Details of the Coast Highway 101 bridgework are included in Sections 2.4.2, 2.5.2, and 2.6.2.

Changes to the I-5 and NCTD crossings would be implemented by others. While a general description of each project is included in Table 5.1, Cumulative Projects List, highly specific details regarding these projects are not included in this document. However, information regarding the proposed channel dimensions as designed for each alternative under the Coast Highway 101 bridge, railroad trestle, and I-5 bridge is provided in Tables 2-7, 2-10, and 2-13. Hydrologic changes, such as improved water flow that would result from each project alternative, are discussed in Section 3.2.3 of this EIR/EIS.

#### JJ-4

The commenter provides information related to historic fishing and fish observation in other regional lagoons. Impacts to fish habitat are discussed in Biological Resources, Section 3.6 of the EIR/EIS, and analysis found that generally long-term benefits to fish habitat would result from the creation of additional acreages of open water, tidal channels, and/or mudflat habitat, as well as enhanced conditions of existing subtidal habitat by increasing tidal influence within the lagoon.

#### JJ-5

Improved tidal exchange and lagoon hydraulics as a result of the SELRP are described and analyzed throughout the EIR/EIS, most specifically in Hydrology, Section 3.2. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### JJ-6

Improved vector control as part of the SELRP and fire hazards and fuel loads are discussed in Section 3.15 Hazardous Materials and Public Safety. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.



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29 September 2014

Re: Comments on Draft EIR/EIS for the San Elijo Lagoon Restoration Project

KK-1

Thank you for the opportunity to provide input on the Draft Environmental Impact Report/Environmental Impact Statement for the San Elijo Lagoon Restoration Project. I have been involved in monitoring and management of the lagoon area's natural resources for 31 years as a consulting biologist under contract to multiple agencies on multiple projects, as County Parks staff, as a San Elijo Lagoon Conservancy board member, and most recently as a volunteer coordinating the monthly bird counts.

KK-2

Thank you also for the time, effort, and detail that have gone into preparation of the proposed project alternatives. However, I was alarmed that some concerns raised during the public review of the 2011 scoping of draft alternatives for the project were not addressed. I am also concerned about the lack of detail provided on many aspects of the project, and by errors in description of existing biological resources.

KK-3

Due to the continued encroachment of marsh vegetation into areas of previous non-vegetated mudflats and resulting significant loss of shorebird foraging habitat, I feel that the No Project Alternative is not a viable option. On the other extreme, Alternative 2A appears to result in more negative impacts than positive outcomes. It would incur more impacts on more sensitive habitat than the other alternatives to the point that recovery of saltmarsh plant communities and tidal benthic invertebrate and fish communities would require several more years to recover. The creation of a central, shorter, and wider lagoon inlet would open the central basin to potential storm damage and/or increased sedimentation farther inland than the current configuration allows, resulting in significantly increased maintenance and repair costs. The conversion of beach habitat for a new inlet would result in negative impacts to existing snowy plover roosting and foraging that are not even mentioned in the report. While Alternative 1A appears to maintain existing conditions with minimal channel dredging, it does not appear to include removal of saltmarsh vegetation and reduction of substrate elevation in the central basin for restoration of non-vegetated tidal mudflats. Alternative 1B does include desirable mudflat restoration in the west central central basin, but also considerable removal of the most established peripheral patches of saltmarsh with the highest densities of Belding's savannah sparrow use. I argue for a modified Alternative 1B as the preferred

KK-4

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#### KK-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### KK-2

Table 1-2 of the EIR/EIS summarizes the general comments and overall themes provided during the scoping meeting and considered for the Draft EIR/EIS. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### KK-3

Impacts to biological resources are identified through Section 3.6 of the EIR/EIS. Please see Response to Comment KK-16 regarding western snowy plover use of beach habitat. Section 3.3 discusses the potential for storm damage due to a new inlet under Alternative 2A. As discussed, design of the project as one large oval would maximize wave divergence and energy loss, and would not result in significant impacts. Inlet maintenance associated with Alternative 2A would be more complex than under Alternatives 1B and 1A, with higher volumes of sand that would need to be removed from the inlet with a dredge.

#### KK-4

The commenter's support of Alternative 1B as the preferred project alternative is noted. The components identified for Alternative 1B are incorporated into the design, with the exception of leaving the CDFW dike in place. Even with the inclusion of additional culverts, the dike would continue to mute tidal expression in eastern portions of the east basin, as well as restrict fluvial flows from the watershed to the ocean. This hydraulic constriction would prevent the project from achieving a number of benefits currently identified for Alternative 1B, including reduced residence times and circulation, healthier salt marsh habitats, decreased sedimentation east of the dike, and enhanced vector control.

KK-4 cont.	↑	project alternative with the minimized potential for negative impacts to endangered species and habitats and additional options in the central and east basins: - use the existing tidal inlet, - create a north-south-trending tidal channel in the West Basin, - enlarge the channel linking the Central Basin and East Basin beneath Interstate 5, - enhance existing tidal channels in the East Basin, and - enhance existing tidal channels in the Central Basin, - restore non-vegetated tidal mudflat habitat in the central portion of the central basin by removal of vegetation and reduction of substrate elevation to that necessary to maintain a non-vegetated intertidal state, - enhance drainage and management capabilities in the east basin by replacing and adding additional flood gate valves and culverts to the existing dike.
KK-5		Alternatives 1B and 2A propose significant but unnecessary increases in the tidal prism through the creation of subtidal basins. The existing tidal prism is sufficient to maintain year-round tidal flow and the inlet open to the ocean with annual inlet channel maintenance at minimal cost. Also, given the predictions of potential sealevel rise due to climate change, excavation to subtidal may be unnecessary.
KK-6		Since the project area is of finite acreage, and every other habitat type has endangered species, creation of subtidal habitat would simply reduce acreage of the more important habitats. Each of the other existing habitats have endangered bird species (upland sage scrub California gnatcatchers, riparian Bell's vireo, freshwater/ brackish/saltmarsh clapper rail, saltmarsh Belding's savannah sparrow, saltpanne least tern, saltpanne/ mudflat snowy plover) and bird groups of concern (open water waterfowl, mudflats shorebirds).
KK-7		
KK-8		Alternatives 1B and 2A propose removal of the east basin flood control dike. However, removal would eliminate a heavily used public access route and wildlife observation opportunities. It also would eliminate a vehicle access route used for maintenance and operations of the Ecological Reserve, including trail maintenance, erosion control, control of non-native invasive species, vector control, environmental education, and law enforcement. Removal would also eliminate the one direct route to the trail system for emergency responders from the Encinitas side, for example in case of brushfire, severe injury, or illegal activity.
KK-9		Removal of the east basin dike would eliminate the possibility of controlling water levels in the east basin, which would eliminate some important habitats. The lack of being able to impound water in winter and draw down in spring would likely result in loss of saltpanne/mudflat habitat in the east basin due to increased growth and coverage of marsh vegetation, it would reduce winter waterfowl open water habitat, spring and fall shorebird foraging mudflat and shallows habitats, and eliminate the existing least tern, snowy plover, stilt, avocet, and killdeer saltpanne nesting habitat. Rather than remove the dike, management capabilities and water circulation in the east basin would be increased by replacing and adding additional flood gate valves and culverts to the existing dike.
KK-10		Recent studies have emphasized the significant loss of saltpanne habitat on the west coast. Although Conservancy staff voice that removal of the dike would not alter the existing saltpanne, that is not communicated in the document nor are details to support this view provided. No existing saltpanne habitat in San Diego County has the configuration of direct tidal connection proposed in this project.
KK-11		Removal of the dike would also isolate the saltpanne and snowy plover and least tern nesting area as an island, making access for monitoring and management difficult and access impractical for heavy equipment if vegetation control is required.
KK-12		As indicated in the SELC website's restoration project background material and the Public Meeting presentation, the habitat type most diminished in recent years at San Elijo has been non-vegetated intertidal mudflats. Since it is a habitat type not based on plant community components, it has frequently been overlooked and/or excluded in wetland restoration planning, resulting in significant losses coast-wide. Recently there has been increasing recognition of the declining populations and sensitivity of multiple species of shorebirds which are dependent on such habitat for foraging, particularly during periods of high physical stress such as migration and wintering. This restoration project provides the opportunity to restore and enhance this habitat type at San Elijo and possibly benefit both migratory shorebirds and locally breeding species, including the federally threatened western snowy plover. I urge
KK-13	↓	

#### KK-5

As described in Chapter 1 of the EIR/EIS, the expansion of the tidal prism is a physical objective of the project necessary to expand the acreage of tidal habitats. Alternative 1B – Refined, which has been identified as the preliminary LEDPA, would not construct a subtidal basin but would achieve a larger tidal prism through an increased channel network in the lagoon. Increasing the tidal prism would increase circulation; reducing residence time, water quality, and vector issues.

#### KK-6

See Response to Comment KK-5. Another physical objective of the SELRP is to increase tidal circulation in the lagoon to increase water quality; achieving this objective requires additional tidal prism and a more effective tidal channel network in the lagoon basins to be created. Although the effects of sea level rise on future habitat distributions were analyzed, those conditions do not preclude the more immediate need for additional tidal prism to improve circulation.

#### KK-7

The SELRP seeks to optimize lagoon function both hydrologically and ecologically. Significant consideration was given to providing high-quality foraging and nesting habitat opportunities for listed species, as well as nonlisted species. Detailed descriptions of the habitat distribution for each alternative are provided in the Preface and Section 3.6 Biological Resources of the EIR/EIS. As discussed in the Draft 404(b)(1) alternatives analysis provided in Appendix O, Alternative 1B-Refined was selected as the preliminary LEDPA in part because it was determined to provide the greatest balance between habitat communities while still achieving the objectives of the project.

#### KK-8

See Response to Comment HH-4. The EIR/EIS addresses impact to the Dike Trail in Section 3.1 and describes the loss of that trail under Alternatives 2A and 1B. The removal of the dike would not decrease emergency or maintenance access. On the southern side of the east basin are four different entry points: Santa Inez, Santa Florensia, Santa Helena, and the La Orilla trailhead. The dike was not constructed to provide emergency access and, because of the sandy nature of the trails on the south side, would not be suitable for typical emergency vehicles such as fire engines, ambulances, or patrol cars. Additional discussion has been added to Section 3.1 identifying existing access routes adjacent to the lagoon and clarifying that the dike is not an existing emergency access route.

#### KK-9

Salt panne habitat east of the dike has historically been used as nesting habitat by the least tern and western snowy plover. The EIR/EIS notes, however, that there have been no reports of least tern nesting since 2005 and no reports of western snowy plover nesting since 2002. The salt panne habitat that exists within the lagoon is a relic habitat that the SELRP anticipates retaining, although the location of the salt panne is not typical of natural salt panne habitat in other regional lagoons and estuaries. CDFW does not currently actively manage water levels east of the dike, although in the past, gates within the dike were opened and closed seasonally. While some of the SELRP alternatives would remove the CDFW dike and increase hydraulic efficiency of the channel adjacent to the existing salt panne, a portion of the dike would be left in place west of the salt panne as transitional area and it is anticipated that the salt panne would continue to be inundated occasionally during high water flow conditions, although it may drain more quickly. Similar sequences of inundation, drainage, and evaporation would occur, enabling the continued existence of the habitat.

**KK-10**

See Response to Comment KK-9. Additional discussion regarding salt panne habitat conditions post-restoration has been added to Section 3.6 of the EIR/EIS.

**KK-11**

Isolation of the salt panne as an island could be beneficial as the new configuration would provide protection against potential predators and human disturbance. It is acknowledged that access for monitoring and management (including vegetation control) would be more difficult, but in order to reduce impoundment of freshwater within salt panne habitat, removal of the dike has been proposed.

**KK-12**

As stated in the comment letter, the reestablishment of recently converted mudflat habitat has been incorporated into the project design. The value of this habitat acknowledged by the commenter is noted. The comment does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**KK-13**

The creation and monitoring/maintenance of unvegetated intertidal mudflats would be a component of the SELRP, as shown in Table 2-17 which identifies the various habitat distributions that would exist post-restoration under each alternative. Details on the elevation and slope of the mudflat habitat are being developed in the grading plans for the lagoon. Elevations will be based on the tidal range of each alternative according to the tidal inundation frequency analysis, with an upper elevation of +1.0 feet NGVD. Provisions for ensuring the success and maintenance of proposed habitats are included in the conceptual restoration plan (Appendix Q to this EIR/EIS) and the monitoring and adaptive management strategy discussed in Section 2.11.

- KK-13 cont. the agencies involved to prioritize restoration, enhancement, and creation of such critical shorebird habitat, and also to include provisions for maintenance of such habitat through vegetation control if needed. Details of elevation and slope of proposed mudflat are lacking but should be based on existing high quality examples such as between the Delta Beach sites at Naval Amphibious Base Coronado. To be functional as optimal habitat, mudflats should have exceedingly shallow slope and be large uninterrupted open expanses. The majority of the area in the central basin that was previously intertidal mudflat and has recently been converting to saltmarsh remains relatively low elevation and intertidal, with little potential for nesting by Belding's savannah sparrows. Restoration of non-vegetated intertidal mudflats should focus on this area rather than in areas of well-established saltmarsh.
- KK-14
- KK-15 I applaud the lack in the proposed project of any jetties, groins, or structures which would potentially impact longshore sand movement. Likewise, I'm glad to see that consideration will be given to local beach replenishment using any appropriate dredge material from the project. However, none of the discussion of sand placement includes mention of existing snowy plover use of the beach sites for roosting and foraging, potential negative impacts, and the need for monitoring during the project. The proposed phasing of aspects of the project to minimize impacts to endangered species and other plants and wildlife is good in theory, but needs to be detailed to thoroughly assess and avoid impacts. It appears that portions of the project area may be inundated for considerable periods if not years under the current proposal. If so, details of phasing the operation in smaller physical areas should be attempted to ensure adequate remaining habitat for endangered species and for migrating shorebirds. Generally, all work should be done in the non-nesting season, but the project is proposed to continue year-round. Details on proposed monitoring and the possibility of work stoppage or rescheduling as a result of endangered species nesting within the project work area need to be provided.
- KK-16
- KK-17
- KK-18 All three alternatives should and do include creation of a new least tern/snowy plover nesting site. Any newly created nesting site should be in excess of at least three to five acres to accommodate a sustainable tern colony or multiple pairs of plovers. At any location, a new nesting site would need posts and signs removed or topped with anti-perch devices to reduce potential perching by raptors. Lighting and glare should be minimal to minimize visibility of nesting birds to nocturnal predators. The substrate needs to be relatively coarse sand-shell to prevent egg-adherence to the substrate and relatively light in color to attract terns. The edges of the site need to be graded to gently slope to non-vegetated mudflats for foraging and clear movement back and forth by plover chicks. The area will need to be posted with signs and fenced to exclude human and pet access, but must allow access for heavy equipment for annual vegetation control. Funding for annual site maintenance, monitoring, and predator control must be secured.
- KK-19 The proposed nesting site at the old settling ponds adjacent to the railroad tracks appears inadequate. Location at this site would require existing utility lines to be undergrounded and poles removed, otherwise disturbance and predation by raptors using the lines or poles would preclude success. Site constraints may limit its size to less than what could accommodate a sustainable tern colony or multiple pairs of plovers. The report mentions signs but not fencing which would be necessary to reduce trespass and disturbance. The report's graphics depict saltmarsh adjacent to the nesting area, which would preclude nesting by plovers since they require non-vegetated mudflats contiguous with nesting habitat. The existing habitat that the new nesting site replaces would need to be mitigated for since it includes saline pond/flats and saltmarsh used by Belding's savannah sparrows, stilts, avocets, etc. Although its existence is due to manmade levees, it is a natural habitat with high value in brine fly production and other invertebrates for migrating, wintering, and breeding shorebird species as well as resident Belding's savannah sparrows.
- KK-20
- KK-21 Several mistakes in the biological resources section need correcting. Multiple references are made to least terns last nesting in 2002 when in fact they nested in 2005, and nesting of both terns and snowy plovers ceased due to predation and the lack of predator control. No mention is made of the nesting by snowy plovers on the east basin saltpanne. The statement is made that saltpanne habitat is typically submerged at high tide, but that is not true of any existing saltpanne habitat in San Diego County. The account of Belding's savannah sparrow references nesting in grasslands and agriculture areas which is applicable only to other subspecies – the local subspecies is restricted to nesting in coastal saltmarsh or similar vegetation adjacent to saltmarsh. California gnatcatcher is listed as "known to occur" but there is
- KK-22
- KK-23
- KK-24

#### KK-14

It is acknowledged that mudflat use by shorebirds is optimized when large uninterrupted open space is provided. Restoration projects generally involve trade-offs between the various habitats and the species that use those habitats. Emerging low marsh in areas that were formerly perched mudflats at the lagoon currently has little value as nesting habitat for Belding's savannah sparrow, but has been recognized by the resource agencies as having value as nesting habitat for the light-footed Ridgway rail. The project alternatives have been designed to take this trade-off into account.

#### KK-15

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### KK-16

Section 3.6 has been revised to reflect that western snowy plover also forages and roosts on the beach, not only on mudflats. Table 3.6-4 shows that all beach material placement sites except Leucadia are more than 1 mile from sites that have had least tern and western snowy plover nesting in the last 5 years. The Leucadia nesting site is 0.8 mile from the nearest placement site. At this distance, plovers would have ample nesting and foraging opportunities in areas undisturbed by material placement activities. As described on page 3.6-140, the project would not result in significant or substantial adverse impacts to western snowy plover. Monitoring for western snowy plover at the Torrey Pines and Cardiff placement sites would occur during construction as detailed in Table 2-25 (PDF-74), due to their proximity to critical habitat. Although not likely, should nesting be detected by the biological monitor at the Cardiff site, a buffer around the nest would be established in consultation with the wildlife agencies and sand placement directed away from the nest.

#### KK-17

Phasing was considered and is included in the project description to minimize impacts. Limiting work to the nonbreeding season was also considered. However, this would double the length of time needed to restore the lagoon (from the proposed 3 years to 6 years). The impacts to species and the lagoon as a whole from a longer construction duration, and continued disruption over a period of 6 years, were considered a potentially greater impact than year-round construction. Several project design features were included to minimize impacts to nesting birds, including, but not limited to, clearing and grubbing outside the nesting season (PDF-12) and initiating flooding outside of the nesting season (PDF-17), and frequent monitoring during the nesting season (PDF-13). Temporary construction dikes are also proposed to constrain flooding and provide dry refuge areas during construction.

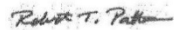
#### KK-18

A preferred design would provide greater nesting area (e.g., 3 to 5 acres) to accommodate a sustainable tern colony or multiple pairs of plovers; however, the proposed location of the nesting area is constrained by surrounding wetland area and an existing access road. Chapter 2 of the Final EIR has been amended to reflect the design recommendations noted by the commenter, including provision of signs deterring access topped with anti-perch devices to reduce the potential for perching diurnal and nocturnal raptors, details for substrate requirements and coloration, evaluation of fencing, and direct continuity to nonvegetated mudflats (where possible). Lighting and glare would be

KK-24  
cont.  
KK-25

no reference to their status as resident and breeding. Mule deer are listed as potentially occurring when there is actually a well-established breeding population. Multiple sensitive species are listed as "potential but not detected in historical surveys" when in fact they have been documented at San Elijo and referenced in previous reports and publications, including sandhill crane, gull-billed tern, black rail, bald and golden eagles, short-eared owl, black swift, vermilion flycatcher, bank swallow, large-billed sparrow, summer tanager, tricolored and yellow-headed blackbirds.

Sincerely,



Robert T. Patton

minimized as described in PDF-7 of Table 2-26. Management and funding for maintenance of the nesting area, as well as the remainder of the project area, will be included in the Long-term Monitoring, Maintenance, and Adaptive Management Program, as discussed in Section 2.11.3 of the Final EIR/EIS. That program will be finalized in conjunction with the permitting and approval process for the project in order to incorporate agency and permit conditions. The final long-term monitoring program will not be completed prior to issuance of the Final EIR/EIS, but will be completed prior to project implementation.

#### **KK-19**

The project does not propose undergrounding of the existing utility lines in the vicinity of the nesting area. The project proponent will coordinate with SDG&E to determine whether there are future plans to underground the utility lines. If utility lines are planned to remain above the ground, the project proponent will discuss options with SDG&E for predator deterrents and anti-perching devices. See Response to Comment KK-18 regarding constraints that limit the size of the proposed nesting area.

#### **KK-20**

See Response to Comment A-19. The habitat communities that would be impacted by the placement of the proposed nesting site are considered sensitive and characterized as salt panne/open water in both the EIR/EIS and Biological Technical Report. These vegetation communities are given sensitive status for their ability to support species foraging and nesting habitat. The commenter's assertion that this area provides existing foraging opportunities for species, including the state-listed Belding's savannah sparrow, is discussed in Section 3.6 of this EIR/EIS. Substantial increases in foraging opportunities for species identified in the comment would result from the increase in mudflat under Alternatives 2A and 1B. Foraging opportunities for species throughout the lagoon were considered, and it was determined that the project would result in an overall increase and benefit to foraging birds, including the Belding's savannah sparrow, as discussed in Section 3.6.

#### **KK-21**

Text has been changed to state that California least terns last nested at the lagoon in 2005, rather than 2002 (CDFG 2005). Text has been updated to reflect that snowy plover have nested on the salt panne in the east basin.

#### **KK-22**

The statement that salt panne habitat is typically submerged at high tide has been revised in Section 3.1.1 of the Biological Technical Report.

#### **KK-23**

Text has been revised in the EIR/EIS for Belding's savannah sparrow to only include language for the local subspecies, and not other savannah sparrow subspecies.

#### **KK-24**

Correct citations and references have been included in the EIR for California gnatcatcher and mule deer.

**KK-25**

Discussion of the species listed in reference to “potential, but not detected in historic surveys” has been revised within the Biological Resources Technical Report (Appendix F) per information provided.

**LL-1**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**Friedman, Kara**

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**From:** Bantilan-Smith, Meris SPL <Meris.Bantilan-Smith@usace.army.mil>  
**Sent:** Monday, September 22, 2014 10:05 AM  
**To:** Hamilton, Megan; Kinkade, Cindy  
**Subject:** FW: [EXTERNAL] San Elijo Lagoon Restoration (UNCLASSIFIED)

Classification: UNCLASSIFIED  
Caveats: NONE

FYI

-----Original Message-----

**From:** Annie [<mailto:ahawkins92007@sbcglobal.net>]  
**Sent:** Tuesday, September 16, 2014 7:05 AM  
**To:** Bantilan-Smith, Meris SPL  
**Subject:** [EXTERNAL] San Elijo Lagoon Restoration

**LL-1** | To Whom It May Concern,  
I'd like to inform you of my support of option 1A for the San Elijo Lagoon Restoration project. Thank You, Annie Hawkins  
760.840.7876

Sent from my iPad

Classification: UNCLASSIFIED  
Caveats: NONE



From: Paul [<mailto:phenkart@gmail.com>]  
Sent: Monday, September 29, 2014 1:51 PM  
To: [meris.bantilan-smith@usace.army.mil](mailto:meris.bantilan-smith@usace.army.mil); Bradley, Lorrie; Megan Hamilton  
Subject: SELRP DEIR

DATE: 29 September 2014

TO: [megan.hamilton@sdcountry.ca.gov](mailto:megan.hamilton@sdcountry.ca.gov), [meris.bantilan-smith@usace.army.mil](mailto:meris.bantilan-smith@usace.army.mil),  
[lorrie.bradley@sdcountry.ca.gov](mailto:lorrie.bradley@sdcountry.ca.gov)

FROM: Paul Henkart, 198 Santa Hidalgo, Solana Beach, CA. 92075

Subject: San Elijo Lagoon Restoration Project (SELRP) DEIR for the San Elijo Lagoon Ecological Reserve (SELER).

- MM-1 | I am responding to the SELRP DEIR as a property owner adjacent to the lagoon since 1990 and a frequent user of the lagoon through birding, walking, and just observing from my property.
- MM-2 | The proposed project is simply too big and too destructive to what many people consider to be the best lagoon in San Diego County for birding and wildlife viewing. SELRP does not consider the impact on humans.
- MM-3 | 1. Why didn't the DEIR include any of my points or suggestions submitted during the scoping period in 2011? See below. Please treat that letter as part of my DEIR comments.
- MM-4 | 2. The DEIR lacks discussion of the effects the restoration will have on the trail system. How will the restoration affect the trails? What trails will be closed and no longer accessible by the public? How will the trail system be affected by sea level rise as well as inlet relocation and bridge lengthening?
- MM-5 | 3. The DEIR does not contain any information about removing public access caused by removal of the dike. How will photographers photograph east basin at dusk as they do now? SELER is the only lagoon in the County with such beautiful east/west viewing. (SELER is one of the few lagoons with trails on the south side so the view is not into the sun).
- MM-6 | 4. Why does the DEIR not mention the proposed Caltrans bikeway on the west side of the 300ft wide I-5 bridge across the lagoon connecting the proposed Manchester Transit Center with the south side of the SELER? Is this bikeway supposed to replace the loss of pedestrian access caused by the removal of the dike? Is the bikeway supposed to replace the photographic view of east basin? Will there be a chain link fence on the bikeway preventing good views? Will non-bikers be safe on this bikeway, especially since it is at the bottom of a long hill from Solana Beach?
- MM-7 | 5. Why didn't the DEIR contain the environmental studies conducted for the Olivenhain Truck Sewer Improvement Project? The City of Encinitas awarded \$175,990. for this study.
- MM-8 |

#### MM-1

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

#### MM-2

Section 3.1 Land Use and Recreation details impacts the SELRP would have on human recreation, and Section 3.14 Hazardous Materials and Public Safety details potential public safety impacts. Both of these sections analyze human impacts based on thresholds established in Appendix G of the CEQA Guidelines, County guidelines, and previous EIR/EIS guidelines. No additional text has been added.

#### MM-3

Table 1-2 of the EIR/EIS summarizes the general comments and overall themes provided during the scoping meeting and considered for the Draft EIR/EIS. The commenters original suggestions submitted during the scoping period have been incorporated as comments. See Responses to Comments MM-19 through MM-32.

#### MM-4

Section 3.1 Land Use/Recreation addresses direct and indirect effects of the proposed project and alternatives on the trail system. Specifically, Table 3.1-2 describes how each trail in the project site would be affected by the SELRP alternatives, both temporarily during construction and in future conditions once construction is completed. Impacts to trails are dependent upon the alternative selected for implementation.

#### MM-5

As discussed in Section 3.16 Global Climate Change and Greenhouse Gas Emissions, projected sea level rise scenarios guided the restoration planning and engineering for the SELRP. In general, most existing trails would either be restored to their existing conditions or not impacted by the SELRP and their current conditions would be maintained. Future trail maintenance is outside of the lagoon restoration efforts proposed by the SELRP. Adaptive capacity for the reserve would depend on the alternative chosen and the adaptive management plan. The adaptive management program for the project, as described in Chapter 2.11, includes measures for monitoring and maintenance activities and addressing specific risks and uncertainties, including those related to climate change. A Conceptual Restoration Plan is attached as Appendix Q to this EIR/EIS. The final plan would include feasible adaptation strategies that can be implemented as risks are identified. This would include establishing indicator data that would be monitored regularly, such as the ordinary high water mark, and minimizing loss by allowing habitat migration or redistributing dredged sediment to raise elevations, as necessary.

#### MM-6

See Response to Comment HH-4. The EIR/EIS addresses impact to the Dike Trail in Section 3.1 Land Use/Recreation and describes the loss of that trail under Alternatives 2A and 1B. Generally, trails on the south side of the lagoon, such as the Santa Inez, Santa Carina, and La Orilla trails would not be permanently impacted under any of the project alternatives.

**MM-7**

The comment is correct that Caltrans has planned trail and pathway improvements along the I-5 corridor and those improvements are discussed in Section 3.1 Land Use/Recreation. North-south trail access across the east basin from Manchester Avenue to the Santa Inez Trail would be restored through efforts underway by Caltrans as part of the construction of an enhanced trail connection associated with the I-5 North Coast Corridor Project as shown in Figure 3.1-1. Caltrans would construct an enhanced trail connection consisting of streetscape improvements and trail improvements that connect into the existing lagoon trail system. Caltrans would connect the north and south sides of the lagoon via a new bike/pedestrian suspended bridge adjacent to the I-5 highway bridge. Additionally, an improved trail segment underneath the I-5 highway bridge would provide better east-west movement. This improved segment along the south side of Manchester Avenue would include a new pedestrian-friendly streetscape linkage to the proposed pedestrian bridge that would be suspended under the west side of I-5. This bridge would extend north to south and would connect to a new trail under I-5 on the south side of the lagoon that would provide connection to existing trails on the west and east sides of I-5 (Santa Inez Trail). This would serve to complement and enhance the existing trail system within the lagoon and enhance coastal access. While loss of the Dike Trail would occur, north-south access would not be precluded and would be maintained via the aforementioned enhancements as trail users could access the new I-5 bridge trail from Manchester Avenue and link to the Santa Inez trail system that provides connection to trails in the southern portion of the lagoon on both the east and west sides. These improvements are under Caltrans jurisdiction and the potential safety or visual impacts are outside the scope of this EIR/EIS for the SELRP and are addressed in Caltrans' environmental document for the I-5 North Coast Corridor Project.

**MM-8**

It is agreed that the Olivenhain Trunk Sewer Project should be included in the cumulative project list as it is a reasonably foreseeable project and in proximity to the lagoon with the potential to result in combined environmental effects. This oversight has been corrected and the project has been added to the list of cumulative projects (Table 5-1). The Olivenhain Trunk Sewer Project is now considered as part of the cumulative scenario and is incorporated throughout the analysis as appropriate in Section 5.3.

- MM-9 | 6. Why didn't the DEIR contain the monthly bird count that has been conducted for over 25 years and is led by a professional biologist?
- MM-10 | 7. The DEIR does not contain any scientific studies stating when east basin was last tidal. To  
MM-11 | what period of time is SELRP supposed to restore?
- MM-12 | 8. Why doesn't the DEIR contain any information about the open drains from I-5 into the lagoon. Or from Escondido creek? Or from the neighborhoods? Or from pet waste? Or from human waste since the only restroom for the entire 1000 acres is on Manchester at the Nature Center.
- MM-13 | 9. What are the effects of SELRP on the fresh water habitat when the dike is removed? What happens to the species that depend of this habitat (e.g. Avocets and Stilts)?
- MM-14 | 10. How will SELERP affect the views of homeowners adjacent to SELER? Will there be tidal  
MM-15 | odors? Will there be bugs (e.g. mosquitos)?  
MM-16 |
- MM-17 | 11. Why won't the southeastern portion near La Orilla creek become totally dry?
- MM-18 | 12. How long will it take before SELER to recover from SELRP and return to the current level wildlife?

Comments to the San Elijo Lagoon Restoration Project Proposal

Submitted by Paul Henkart, [phenkart@gmail.com](mailto:phenkart@gmail.com), 918 Santa Hilda, Solana Beach, CA 92075

13 December 2011  
Ms. Megan Hamilton  
County of San Diego Department of Parks and Recreation  
5500 Overland Ave, Suite 410  
San Diego CA 92123

- MM-19 | The restoration of the San Elijo Lagoon Ecological Reserve (SELER) should and must include more than just the hydrology presented at the public meetings. The entire SELER must be considered. A project of this size will limit financing for other projects within SELER for the foreseeable future, thus all possible enhancements should be considered.
- MM-20 | The hydrological proposal must consider and publically show ALL the side effects of increased tidal flow to SELER over the next 25 years. E.G. What hiking trails will become  
MM-21 | inundated. The proposal must also consider which trails will become impassable due to sea level rise.
- MM-22 | The restoration proposal should address other sources contributing to poor water quality such as pet waste, agricultural runoff, and freeway runoff.

#### MM-9

Monthly bird count information was included in the BTR and considered during preparation of the documents. Annual survey information was also considered in the BTR and in the biological resources analysis in Section 3.6 of the EIR/EIS. Reference to monthly bird count information has also been added to the Final EIR/EIS in relation to nonlisted shorebird species. As noted in the BTR, San Elijo Lagoon has been studied extensively for decades, and the baseline for analysis includes the existing knowledge, up until the issuance of the NOP. Much of the analysis was based on habitat suitability for specific species in order to be more conservative, and the project was designed to avoid impacts to birds when possible. Some features designed into the project for impact avoidance include the incorporation of refugia during construction, and constraints on initiating inundation during the breeding season. Although new information becomes available each year based on ongoing survey efforts by individuals in the lagoon (e.g., burrowing owl, light-footed Ridgway's rail, and Belding's Savannah sparrow), the baseline information was established in compliance with CEQA and NEPA and the analysis methodology was developed to provide a conservative evaluation, as described at the beginning of Section 3.6.

#### MM-10

The EIR/EIS does not provide highly detailed information regarding the historic conditions of the lagoon as it is not necessary for the environmental analysis of impacts associated with the project. The intent of the SELRP is not necessarily to restore or recreate the lagoon to a certain or specific historic condition, but rather to restore the lagoon's declining condition to a healthy and well-functioning hydraulic and ecologic system that can be maintained through adaptive management. Additional context regarding historic conditions has been added to Chapters 1 and 2 as appropriate to provide an overall understanding of the lagoon.

#### MM-11

See Response to Comment F-15. The intent of the restoration project is not to restore or re-create the lagoon to a certain or specific historic condition, but rather to restore the lagoon's declining condition to a healthy and well-functioning hydraulic and ecologic system that can be maintained through adaptive management.

#### MM-12

Section 3.4 of the EIR/EIS provides detail on the current water quality conditions of the lagoon and the pollutants contributing to the poor water quality status. Analysis shows that water quality would generally improve with implementation of any of the SELRP alternatives. However, it is outside the scope of the restoration project to modify or change those pollutant sources that drain into the lagoon.

#### MM-13

The habitat in the area is expected to transition over time with removal of the dike. A discussion of how the transition from freshwater to saltwater habitat is anticipated to affect avocets and stilts, as well as other nonlisted shorebirds, has been added to Section 3.6.

#### MM-14

Although the visual character of the project site would change substantially from existing conditions during the construction phase, as discussed in Section 3.9 Visual Resources, such activities would be

temporary. As vegetation in the lagoon becomes reestablished at the new elevations/grade, the visual character of the lagoon would become similar to the existing pre-construction conditions. Conditions would return due to active restoration (planting plants) as well as natural recruitment. The mosaic of water, mudflats, and vegetation would return. Thus, residents looking at the lagoon would experience an open, natural system similar in character to the present condition.

**MM-15**

As discussed in Section 3.11 Air Quality, the human response to odors is extremely subjective, and sensitivity to odors varies greatly among the public. The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. While offensive odors rarely cause physical harm, they can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. The typical odor currently noted with low tide conditions in the area is associated with a high level of organic debris. It is anticipated that improved lagoon hydraulic conditions with regular and frequent tidal flushing would reduce associated odors compared to existing conditions, as water would not have the opportunity to become stagnant and produce odor-causing conditions. Areas would generally be inundated during construction, and equipment within the diked basins would circulate water within impounded areas, which would also reduce odors compared to existing conditions. Thus, the SELRP would not generate or expose persons to substantial objectionable odor emissions.

**MM-16**

The EIR/EIS provides analysis of the current vector control concerns associated with the lagoon in Section 3.15 Hazardous Materials and Public Safety. The EIR/EIS found that implementation of Alternative 2A would result in a less-conducive vector breeding condition and reduce the public health and safety risk associated with mosquito-borne diseases. Alternatives 1B and 1A would also improve vector conditions, though to a lesser degree relative to Alternative to 2A.

**MM-17**

The southeastern portion of the lagoon would continue to receive freshwater flows from La Orilla creek.

**MM-18**

See Response to Comment A-5.

**MM-19**

The comment is noted; it does not raise a specific issue related to the adequacy of the EIR/EIS. Therefore, no specific response is provided.

**MM-20**

The EIR/EIS for the SELRP and supporting technical studies provide a range of analysis for 16 topic areas that could be potentially affected by the restoration effort. The adaptive management program for the project, as described in Chapter 2.11 and outlined in the Conceptual Restoration Plan (Appendix Q), includes measures for monitoring and maintenance activities and addressing specific risks and uncertainties, including those related to climate change.

**MM-23** | The proposal should address the possibility of odors caused by low tides.

**MM-24** | If some of the affected property is not public (is the 15 acres of Conservancy land owned by the public?), what steps will be taken to ensure that public money is not used to benefit a private landholder? (Ensure that the Conservancy cannot sell their property for more money).

**MM-25** | The removal of the dike in east basin is of major concern to many homeowners and SELER users. The dike is the only access to the center part of the lagoon and is used daily by numerous bird watchers and photographers. (Suggestion: replace the dike with a continuous boardwalk). Doesn't the dike increase the overall biodiversity of SELER by having both salt and fresh water habitat?

**MM-27** | The restoration should be performed in phases over many (10?) years in order to minimize the disturbance to the existing wildlife (what happens to the snails that the birds eat? What happens to the rodents and snakes? What happens to the Northern Harrier nesting area?).

**MM-30** | What is the current human usage of SELER and how will that be affected? (birders vs dog walkers vs runners).

**MM-31** | The proposal should consider the loss of wildlife habitat due to the increasing illegal use of the Solana Beach bluffs (several new trails up the side of the bluffs as well as increased graffiti, alcohol containers, campfires, and general bluff destruction).

**MM-32** | The proposal should consider the loss of wildlife habitat due to unleashed dogs off-trail.

#### **MM-21**

See Response to Comment MM-5.

#### **MM-22**

See Response to Comment MM-12 regarding water quality pollutants.

#### **MM-23**

See Response to Comment MM-15 regarding odors associated with low tides.

#### **MM-24**

Current and applicable land ownership is detailed in Section 3.1 of the EIR/EIS. The comment is noted; it does not raise a specific issue related to the adequacy of the EIR. Therefore, no specific response is provided.

#### **MM-25**

Table 3.1-2 and Figure 3.1-1 describe the recreation impacts of the removal of the Dike Trail. Under Alternatives 2A and 1B, north-south trail access across the east basin would be available via the enhanced trail connection planned for Caltrans' 1-5 North Coast Corridor Project. While loss of the Dike Trail would occur, its removal would further expand tidal exchange and enhance the ecological function within the lagoon. Ultimately, this would enhance opportunities for bird watchers, photographers, and other recreational users.

#### **MM-26**

Under Alternatives 2A and 1B, the existing CDFW dike in the east basin would be removed and replaced with channel connections, which would increase the ability of the east basin to drain fluvial freshwater flows, as well as allow some tidal influence. The open freshwater ponds currently maintained by the CDFW dike would be converted to subtidal habitat. While the current freshwater ponds do create a different type of habitat, the removal of the dike would allow for improved circulation throughout the lagoon and the ability to provide a better balance of habitats throughout the lagoon.

#### **MM-27**

The schedule of the lagoon restoration has been designed to be the least impactful to biological resources. It has been determined that lengthening or stretching the construction schedule out for a longer period of time could increase the overall impacts to species. Where required, the construction activities would be scheduled to avoid the breeding season to minimize potential impacts (PDF-12, PDF-17, PDF-74). Section 3.6 of the EIR/EIS discloses those short term impacts that result during the construction period as well as the long-term impacts that would remain once construction is completed. Within 5 to 10 years following restoration, habitats are expected to have substantially recovered and matured.

#### **MM-28**

The Preface and Section 3.6 Biological Resources of the EIR/EIS, as well as the Biological Resources Technical Report included as Appendix F, provide a detailed analysis of wildlife and birds associated with the lagoon and potential impacts to those species. The comment is noted; it does not raise a

specific issue related to the adequacy of the EIR/EIS. Therefore no specific response is provided.

**MM-29**

The Preface and Section 3.6 Biological Resources of the EIR/EIS provide a detailed analysis of the potential temporary and permanent impacts to birds, including threatened and endangered species, during construction and operation of each SELRP alternative. The EIR/EIS includes northern harrier as a species that occurs with the lagoon. While some areas of existing avian use would be modified, the project has been designed with appropriate habitats to accommodate a wide range of bird species, including northern harrier. Additionally, an avian nesting area would be established in the central basin. The EIR/EIS acknowledges potentially significant and unavoidable impacts to sensitive habitats, and breeding and foraging due to construction noise.

**MM-30**

The current human use of the lagoon is documented in Section 3.1 Land Use/Recreation of the EIR/EIS, and throughout other specific sections as appropriate. The San Elijo Lagoon Ecological Reserve is a multiuse recreational area providing opportunities for walking, hiking, running, bird watching, equestrian use (permitted on trails east of I-5 only), nature observation, and photography. Within the Reserve, activities including swimming, wading, diving, fishing, watercraft, and other water-based recreation are not permitted within lagoon waters. The effect of the SELRP on humans is analyzed throughout the EIR/EIS in individual topic sections, such as traffic, land use and recreation, visual resources, etc. In the long term, the lagoon restoration would result in increased ecological quality within the lagoon to be experienced by bird watchers, nature enthusiasts, and recreationists.

**MM-31**

Section 3.6 of the EIR/EIS, Biological Resources, and the Biological Resources Technical Report evaluated the existing conditions of the habitats and wildlife in and around the lagoon. The regulation of illegal activities is outside of the scope of the lagoon restoration project.

**MM-32**

Section 3.6 of the EIR/EIS, Biological Resources, and the Biological Resources Technical Report evaluated the existing conditions of the wildlife species occurring within and around the lagoon. The presence of unleashed dogs is an existing condition of the trail use. The SELRP does not include any changes to present regulations that require pets to remain leashed on trails.

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# **APPENDIX Q**

## **CONCEPTUAL RESTORATION PLAN**



**CONCEPTUAL RESTORATION PLAN  
FOR THE SAN ELIJO LAGOON RESTORATION PROJECT  
SAN DIEGO COUNTY, CALIFORNIA**



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December 2015



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## LIST OF ACRONYMS AND ABBREVIATIONS

BMP	best management practice
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
lagoon	San Elijo Lagoon
LEDPA	Least Environmentally Damaging Practicable Alternative
NGVD	National Geodetic Vertical Datum
POC	point of connection
Reserve	San Elijo Lagoon Ecological Reserve
SELC	San Elijo Lagoon Conservancy
SELRP	San Elijo Lagoon Restoration Project

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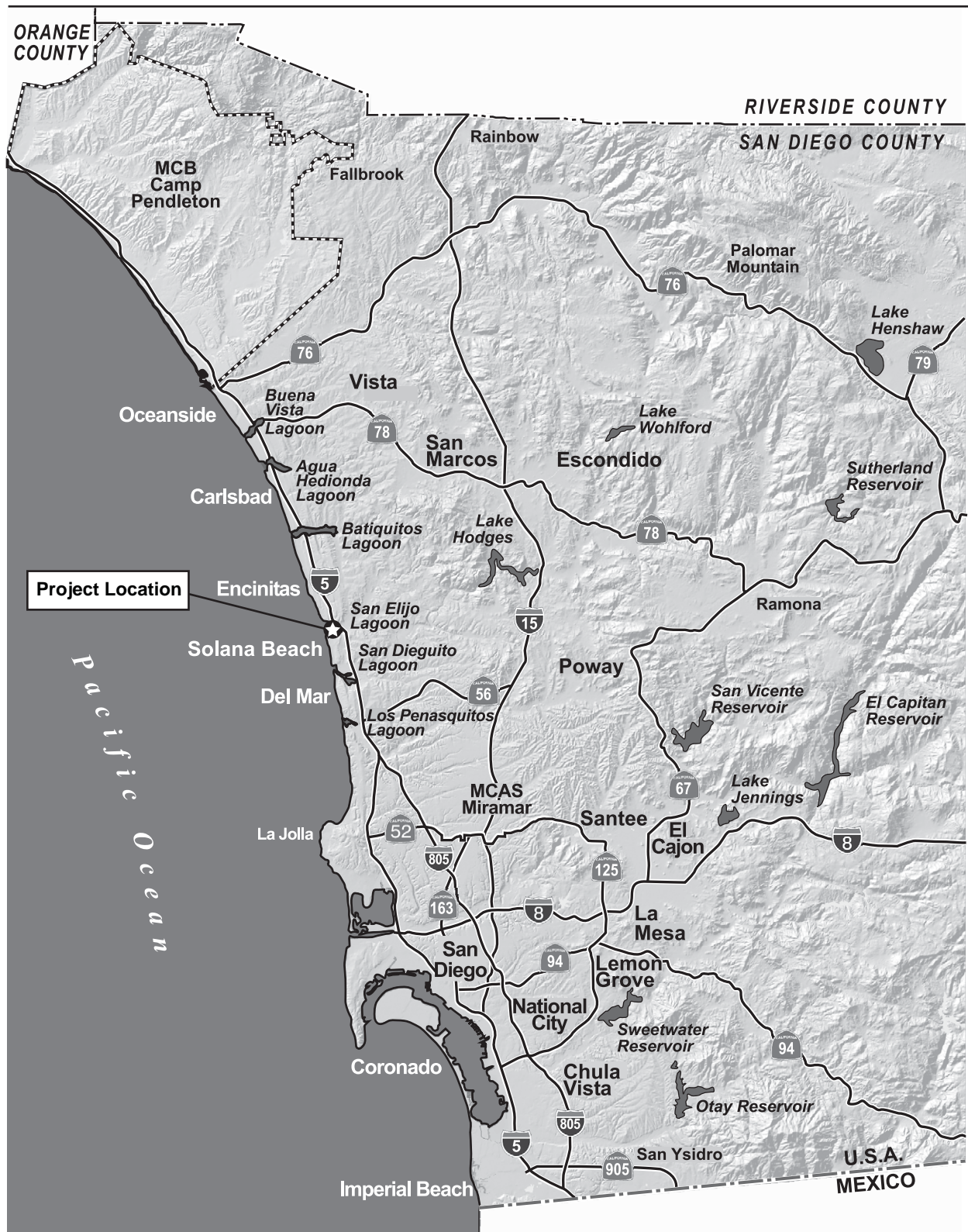
## **CHAPTER 1.0**

### **INTRODUCTION**

The San Elijo Lagoon Restoration Project (SELRP) is being proposed by the San Elijo Lagoon Conservancy (SELC) to restore ecological functions in San Elijo Lagoon (lagoon), which is located within the San Elijo Lagoon Ecological Reserve (Reserve). The lagoon is a regionally important coastal wetland with substantial human and environmental resources. It is located between the cities of Encinitas and Solana Beach (Figure 1) and provides habitat for federally listed threatened and endangered species, as well as other sensitive plants and wildlife. The Reserve is also primarily publicly owned and offers recreation opportunities such as hiking and bird watching (Figure 2). Lagoon functions have become compromised over time, as development and infrastructure constraints have affected lagoon hydrology, the ecosystem, and the balance between unvegetated and vegetated intertidal habitats (leading to a less connected gradient of habitats).

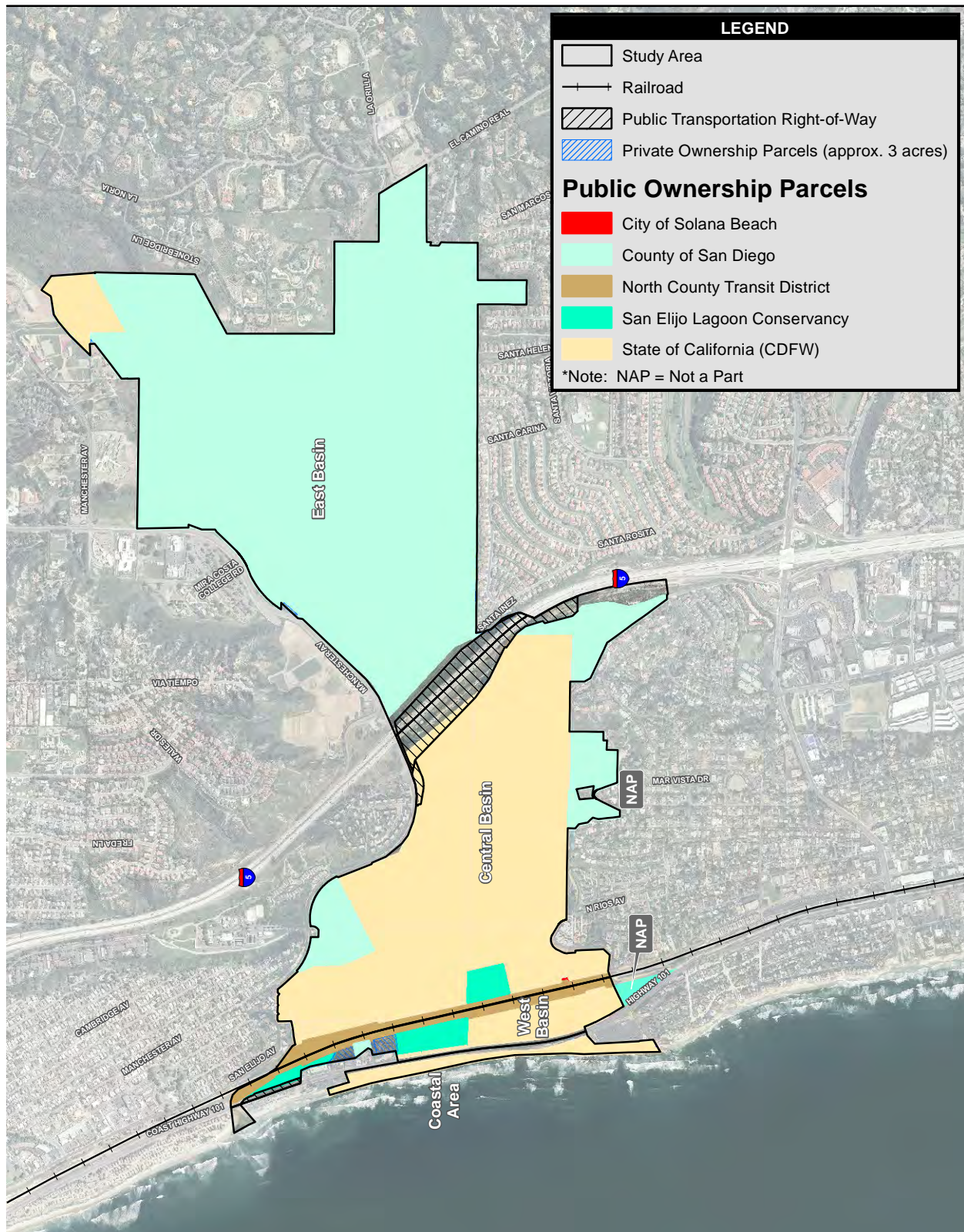
The SELRP is an effort to restore lagoon functions and services to the extent practicable given the current constraints of surrounding development. The proposed project aims to improve water quality and enhance tidal exchange of the lagoon with the ocean by removing nutrient-rich sediments and modifying existing constraints such as a limited channel network and constraints to tidal influence, such as fill for Coast Highway 101, the North County Transit District railroad, Interstate 5, and a dike owned by California Department of Fish and Wildlife. Habitat distributions proposed by the SELRP would represent a more connected gradient of balanced habitat types that would provide both nesting and foraging habitats for a variety of bird species, provide additional habitat for fish and benthic invertebrates, and benefit other species. The project also aims to create a more resilient ecosystem that can accommodate future climate change scenarios, including sea level rise, through the incorporation of higher elevation transitional areas.

Various alternatives with different ultimate habitat distributions were evaluated for the project in the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The Applicant's, SELC, preferred alternative is Alternative 1B-Refined (Figure 3) and is identified in the Draft Section 404(b)(1) Alternatives Analysis as the preliminary Least Environmentally Damaging Practicable Alternative (LEDPA). While the final Section 404(b)(1) Alternatives Analysis will be included with the U.S. Army Corps of Engineers' Record of Decision and will confirm the LEDPA, this document has been prepared based on the preliminary LEDPA/preferred alternative currently identified. This conceptual restoration plan has been

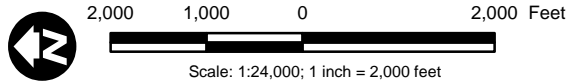


**Figure 1**  
**Regional Map**





Source: LandisCor 2010; San Elijo Lagoon Conservancy; SanGIS; AECOM 2012



**Figure 2**  
**San Elijo Lagoon Restoration Project**  
**Study Area and Land Ownership**

San Elijo Lagoon Restoration Project-Conceptual Restoration Plan

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prepared to frame the anticipated components of the planting efforts and success criteria that will be used to measure the performance of the SELRP. While this conceptual restoration plan herein addresses needs associated with implementation of Alternative 1B – Refined, it is anticipated that the conceptual nature of this plan would enable it to be modified to address other alternatives. Pre- and post-construction monitoring that focuses on biological and physical monitoring aimed at minimizing and avoiding impacts will be consolidated from the EIR/EIS for this project and will include conditions identified by agencies during the permitting process. Specific construction monitoring requirements will be discussed in detail in a Construction Monitoring Plan prepared after completion of the permitting process.

## **1.1 REVIEW OF PROJECT GOALS AND ALTERNATIVES**

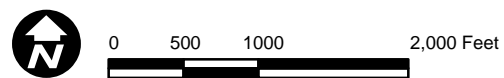
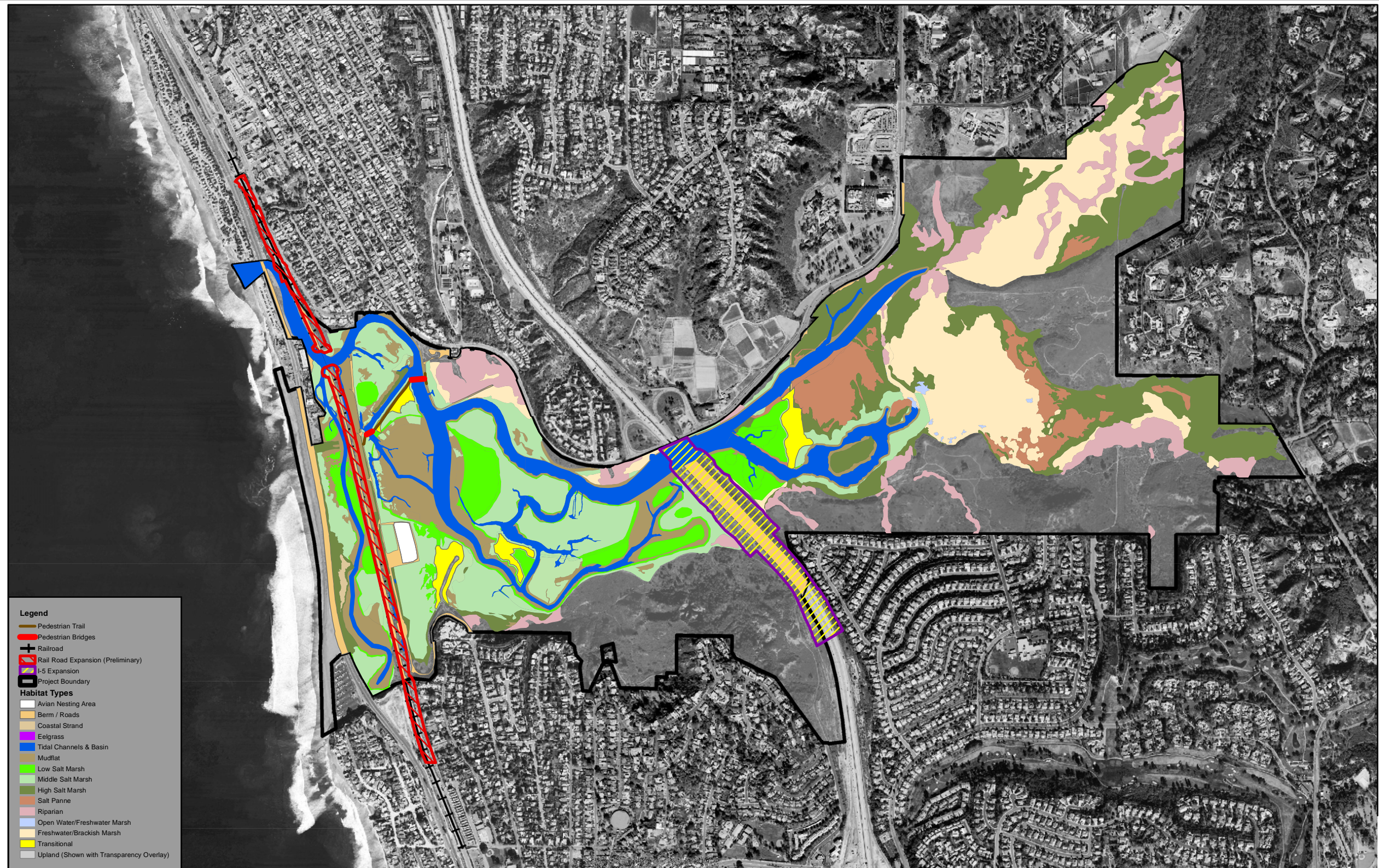
As part of project development, the stakeholder group identified a series of project goals for the project, which are included in the EIR/EIS. The overarching goal, or purpose, of the SELRP is to protect and restore, then maintain via adaptive management, the San Elijo Lagoon ecosystem and its adjacent uplands to sustain and perpetuate native flora and fauna that are characteristic of southern California, and restore and maintain estuarine and brackish marsh hydrology. This goal was further refined into four categories of objectives:

1. Physical restoration of lagoon estuarine hydrologic functions (including water quality)
2. Biological restoration of habitat and species within the lagoon
3. Management and maintenance to support long-term viability of the restoration efforts
4. Maintenance of recreational and educational opportunities

## **1.2 OVERVIEW OF CONSTRUCTION AND POST-CONSTRUCTION HABITAT RESTORATION**

Generally, construction of the SELRP would consist of dredging and grading within the lagoon to raise or lower elevations to create target estuarine habitats that remain resilient through time. Sediments removed from the lagoon would be disposed of in different locations, potentially including offshore disposal areas, offshore placement sites, nearshore areas, nearby beaches, and on-site placement. Alternative 1B – Refined would include construction of an overdredge pit within the lagoon to provide on-site disposal of fine-grained material. This pit approach would also generate coarser-grained material that could potentially be beneficially reused in the littoral zone. After construction of the SELRP, restoration activities of graded and/or inundated areas within the lagoon would occur to facilitate recovery of habitats. Preparation of the site for some of the dredge activities would involve clearing some of the vegetation, which would be disposed





**Figure 3**  
**Proposed Habitat Distribution**



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of at an off-site facility such as Miramar landfill. Off-site disposal and/or placement sites of the dredge material would include ocean or beach areas that would not require habitat restoration and are therefore not included in this document. Construction in an estuarine environment is challenging and can be complex. The construction approach for the SELRP identified in the EIR/EIS is based on a combination of dry and wet construction. Areas proposed to be lowered in elevation outside of channels (thus creating mudflats or low marsh) would be graded by equipment designed to work within wetland soils (identified as areas of shallow grading/dredging in this discussion). This low-pressure earth-moving equipment would grade areas outside of channels and would have tracks specifically designed to allow the equipment to remain on the surface of marsh sediments, minimizing soil compaction during grading. Sediment removed during grading would be temporarily shifted to adjacent channels proposed for dredging. This activity would occur under relatively dry conditions by controlling water elevations in the construction area for short periods of time.

After completion of grading, water levels would be increased to up to +1 foot National Geodetic Vertical Datum (NGVD) in the west basin, and up to +2 feet NGVD in the central and east basins, inundating areas primarily within channels. A cutterhead dredge would then remove both the sediment that was shifted using the low-pressure equipment and the excess channel sediment, and would place both in the overdredge pit. A dike system would be utilized to control water levels to maintain both dry and wet conditions (relative to existing).

The construction approach and schedule have been developed to allow year-round activity rather than discontinuing construction during the spring-summer wildlife breeding season. The planned approach would complete construction in a shorter timeframe (1 to 2 years sooner) and would minimize situations where wildlife would potentially recolonize areas prior to the completion of construction. Overall, the planned approach is expected to avoid and minimize impacts to sensitive and nonsensitive wildlife compared to an interrupted and longer schedule. Additional general project design features have been incorporated into each of the project alternatives to minimize effects to other resources, such as water quality, as identified in the EIR/EIS.

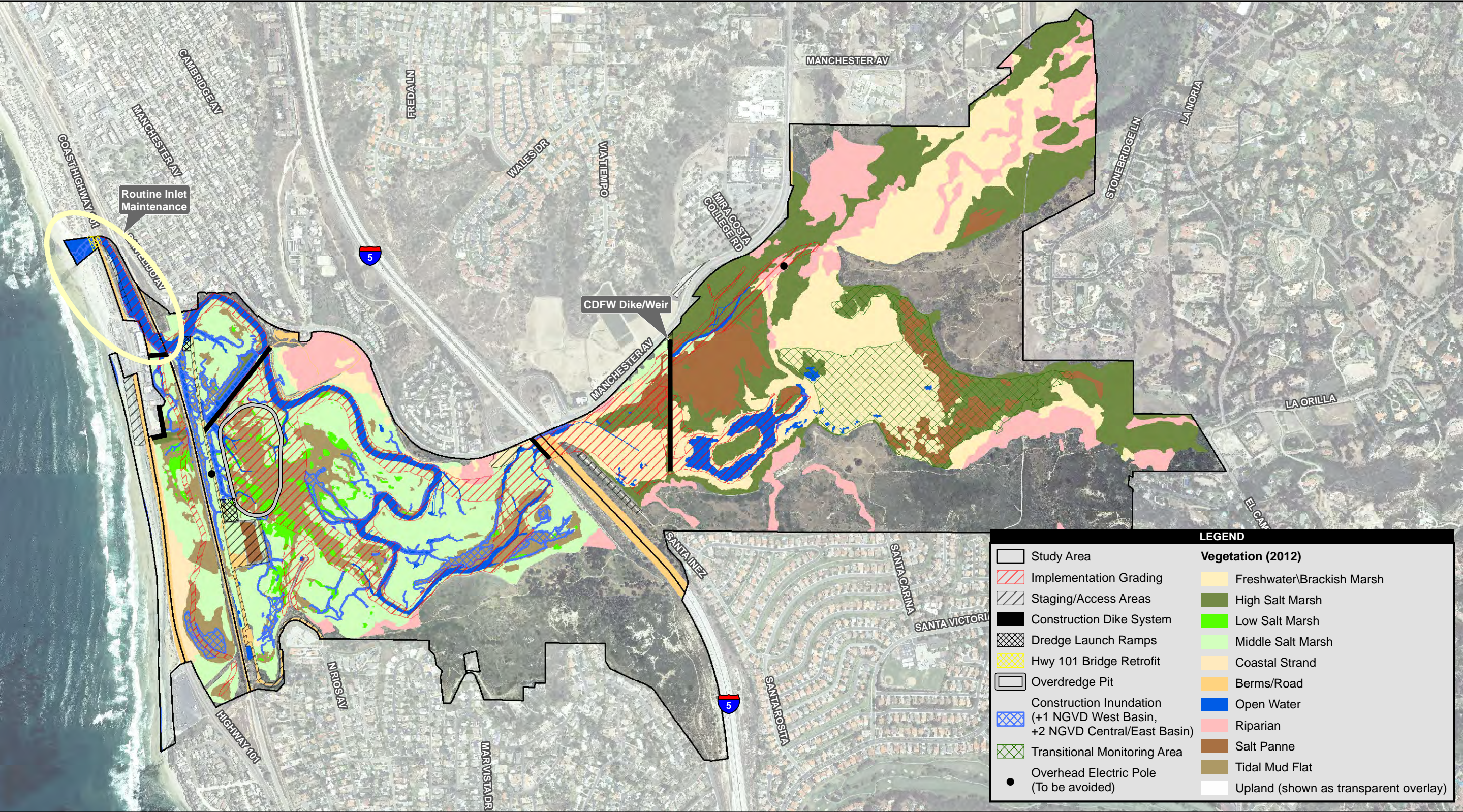
Construction would occur in phases and would result in two types of direct impacts to habitat: grading/dredging in areas where sediment removal or addition is required (to improve water quality and/or establish appropriate elevations), and extended inundation in areas diked off to allow the dredging to occur. The majority of inundation would occur in unvegetated wetland areas, such as subtidal channels and mudflats, with only minimal inundation in low-marsh and mid-marsh habitats. Figure 4 shows proposed grading/dredging and inundation impacts to existing vegetation communities. After dredging and fill placement are complete within each basin of the lagoon, recovery of disturbed areas would begin. It is anticipated that, to attain the post-restoration habitat distribution shown in Figure 3, a combination of natural recruitment and

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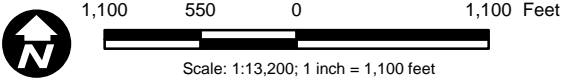
targeted planting and seeding would occur in areas impacted through grading/dredging. Some wetland habitats are relatively easy to establish through natural recruitment if they are at specific elevations and associated tidal inundation frequencies (e.g., pickleweed/mid-marsh). Other habitat types, such as low-marsh and transitional habitats, do not typically reestablish as quickly and would be supplemented with focused planting efforts.

This conceptual restoration plan identifies the different habitats that would be impacted by construction of Alternative 1B – Refined, as well as strategies that are anticipated to be used for restoration and facilitation of recovery of habitat in those areas. A comprehensive restoration plan would be prepared in accordance with the Corps and EPA joint 2008 Mitigation Rule (33 C.F.R. Part 332) for San Elijo Lagoon once a final alternative has been selected. The comprehensive restoration plan would include detailed plant and soil salvage plans, planting plans, natural recruitment expectations for wetland habitats, measures to promote sensitive species recruitment (wildlife and plant species), quantitative and qualitative monitoring activities, success standards, remedial measures, and annual monitoring requirements. Monitoring and maintenance are outlined in this report at a conceptual level, including sediment and water quality sampling, as well as biological assessments and analyses (e.g., algal, invertebrate, avian, and aquatic species surveys) that may be required. The habitat restoration plan would be implemented for a minimum of 5 years or until success criteria are met (anticipated to occur within 10 years of project completion). Following the 5- to 10-year post-construction monitoring period, long-term monitoring, maintenance, and adaptive management of the lagoon would continue.





Source: SANDAG 2012; MoffattNichol; San Elijo Lagoon Conservancy; AECOM 2013



**Figure 4**  
**Impacts to Vegetation Communities**



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## CHAPTER 2.0

### HABITAT RESTORATION IMPLEMENTATION

The following section outlines the habitat restoration implementation schedule and activities, including native plant salvage, site access and staging, native plant and seed palettes, temporary irrigation, erosion control, and post-construction and habitat restoration implementation as-built conditions.

#### 2.1 CONSTRUCTION AND HABITAT RESTORATION ANTICIPATED SCHEDULE

The anticipated schedule includes habitat restoration and construction activities. Some of the habitat restoration activities will occur prior to the phased construction as well as concurrently with construction (Table 1). Habitat restoration activities include collection of seed and cuttings and salvage of native plants in each of the basin areas prior to construction for use and installation after grading/dredging. Cordgrass will be salvaged and retained for planting in each basin at quantities that will allow for reestablishment. Consistent with the phased construction approach, seeding and planting will occur in a phased manner as construction is completed in the basins, as described in Table 1. As discussed in Section 1.2, the construction approach and schedule will be continuous rather than discontinuing construction during the wildlife breeding season. The planned approach will involve diking within specific areas of each basin to allow a combination of dry and wet construction. This approach will complete construction in a shorter timeframe and overall is expected to avoid and minimize impacts to sensitive and nonsensitive wildlife compared to an expanded schedule.

**Table 1**  
**Concurrent Construction and Restoration Activities**

Restoration/Planting Activities	Lagoon Restoration Construction Activities
<b>Pre-construction</b>	
<ul style="list-style-type: none"><li>• Install fencing around construction areas adjacent to sensitive habitats</li><li>• Collect seed and cuttings within all basins</li><li>• Salvage native plants within the central basin, primarily cordgrass</li></ul>	<ul style="list-style-type: none"><li>• Prepare staging and stockpile areas</li><li>• Mobilize equipment to the site</li></ul>
<b>Phase 1 (13 months; 3 central basin diked/10 open to tidal action)</b>	
<ul style="list-style-type: none"><li>• Salvage native plants within the east basin</li></ul>	<ul style="list-style-type: none"><li>• Initiate shallow grading and launch dredge at the central basin</li><li>• Clear and grub central basin</li></ul>



Restoration/Planting Activities	Lagoon Restoration Construction Activities
	<ul style="list-style-type: none"> <li>Dredge overdredge pit</li> <li>Place sand in littoral zone or offshore sites</li> </ul>
<b>Phase 2 (7 months central basin diked)</b>	
<ul style="list-style-type: none"> <li>Collect seed and cuttings within all basins</li> </ul>	<ul style="list-style-type: none"> <li>Clear and grub west portion of east basin</li> <li>Complete shallow grading and dredging in central basin</li> <li>Place sediment in overdredge pit</li> </ul>
<b>Phase 3 (7 months east basin flooded)</b>	
<ul style="list-style-type: none"> <li>Begin active restoration in central basin, including planting and seeding—use pre-construction salvage from central basin</li> <li>Salvage native plants within the west basin, primarily cordgrass, if appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Complete shallow grading and dredging in east basin</li> <li>Place sediment in overdredge pit</li> </ul>
<b>Phase 4 (3.5 months west basin flooded)</b>	
<ul style="list-style-type: none"> <li>Begin active restoration in east basin, including planting and seeding—use salvage from west basin</li> <li>Continue seed and cuttings collection within San Elijo Lagoon</li> <li>Monitor central basin for planting success</li> </ul>	<ul style="list-style-type: none"> <li>Clear and grub west basin</li> <li>Grade and dredge channel in west basin</li> <li>Clear inlet to design dimensions</li> </ul>
<b>Post-Construction</b>	
<ul style="list-style-type: none"> <li>Begin active restoration in west basin, including planting and seeding—use remaining salvage from west basin if available</li> <li>Monitor central and east basins for planting success</li> <li>Monitor west basin for planting success</li> <li>Restore temporary staging and access areas to pre-construction conditions</li> <li>Complete 120-day tidal hydrology and plant establishment period</li> <li>Conduct monitoring of San Elijo Lagoon physical functionality and ecology</li> <li>Initiate 5- to 10-year maintenance and monitoring period</li> <li>Post 5- to 10-year long-term maintenance and monitoring of habitat restoration</li> <li>Implement adaptive management strategies and activities as-needed during 5- to 10-year and long-term maintenance and monitoring periods</li> </ul>	<ul style="list-style-type: none"> <li>Demobilize equipment and remove from site</li> <li>Restore temporary disturbance areas to pre-construction condition</li> </ul>

## 2.2 PLANT SALVAGE PRIOR TO AND DURING CONSTRUCTION

For this multi-phased project, it will be possible to salvage native plants from areas prior to impacts. Salvaged plants will then be used in restoration areas temporarily or permanently impacted. During the project, different areas will be impacted permanently by grading/dredging where soil will be removed or placed as fill. Although grading/dredging areas are considered permanent impact areas because of changes in grades and ecological conditions, native habitats will be restored in these areas after grading/dredging.

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In areas where grading/dredging will occur, plants may be salvaged and staged and stored either on-site or off-site until construction is complete for that phase and habitat restoration begins. In areas where California cordgrass (*Spartina foliosa*) is expected to be impacted, it will be salvaged along with some intact soil around the rhizomes for replanting later in low-marsh areas. Salvaged California cordgrass may be staged on-site in locations where it can be floated within the lagoon to ensure adequate water for the salvaged plants. Other staging areas and methods may also be employed to ensure a sufficient number of salvaged plants are returned to the restoration sites. Seed and cuttings collection may begin prior to construction. It is expected that pickleweed (*Salicornia* sp.) will naturally recruit in mid-marsh areas and therefore will not be targeted for salvage or propagation.

## **2.3 SITE ACCESS AND STAGING FOR HABITAT RESTORATION**

Access points and routes for habitat restoration activities will be the same as those used during construction and are generally located within existing disturbed areas. Anticipated access points and routes are given below:

- west basin off Coast Highway 101, both north and southbound lanes
- central basin from the north end of North Rios Avenue along the existing access road at the south side of the lagoon
- from Manchester Avenue on the north side of the lagoon
- east basin from the north end of Santa Ynez Street along the existing access road

Staging for habitat restoration purposes will also use the construction staging areas and may utilize a portion of an approved staging area as a temporary nursery for native plants salvaged from San Elijo Lagoon.

Staging areas identified as temporary will also be stabilized for erosion control and restored with native plants once construction is complete.

## **2.4 CONCEPTUAL PLANT PALETTES AND SEED MIXES**

The plant palette and seed mix are designed to supplement naturally recruiting species and focus on increasing species diversity and the rate of native plant cover and development within the temporarily impacted mid- and high-marsh areas. Within the low-marsh, it is expected that salvage of California cordgrass prior to construction will provide enough plant stock to reestablish low-marsh after construction is complete. Pacific pickleweed (*Salicornia pacifica*) is

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expected to naturally recruit into impacted areas and is not included in the plant palette. This species may be added to the plant palette later and installed in limited numbers if natural recruitment does not occur as readily as expected.

## **2.5 PLANTING AND SEEDING METHODS**

Areas to be planted include low-marsh, mid-marsh, and high-marsh/transitional habitats. Planting areas are represented in Figure 5.

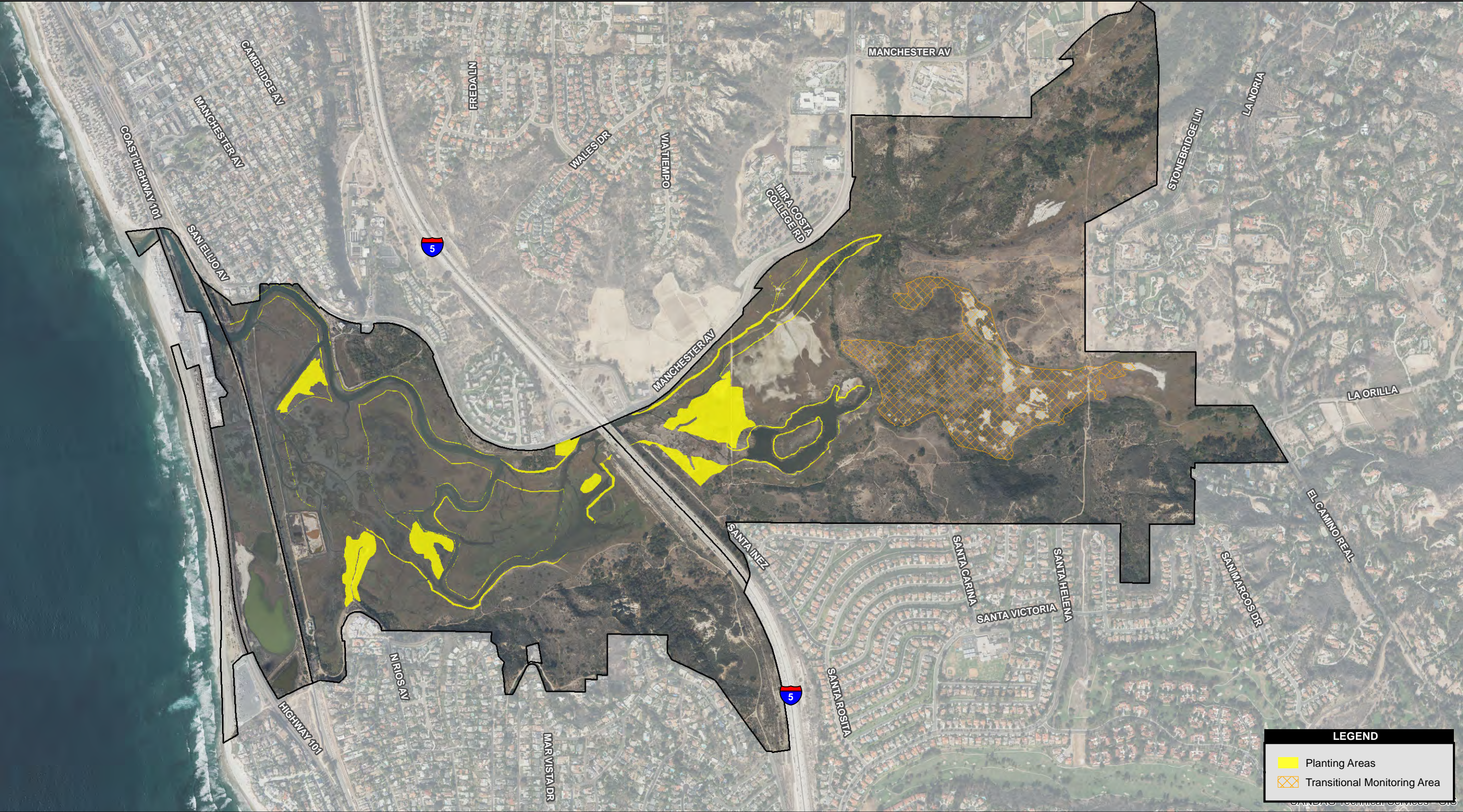
### **Low-Marsh**

Restored low-marsh areas will be planted exclusively with California cordgrass salvaged from areas impacted during construction. Other species in low numbers are likely to volunteer in the low-marsh such as Pacific pickleweed but California cordgrass is the only species that would be planted to ensure it initially establishes in an adequate density. California cordgrass plugs will be harvested by hand to include native soil approximately 4 to 6 inches in diameter surrounding the stems and attached rhizomes. California cordgrass plugs will be installed by hand approximately 7 feet on center at appropriate elevations to ensure daily tidal inundation. Installed California cordgrass plugs will not be irrigated as they will receive sufficient periods of tidal inundation.

### **Mid-Marsh and High-Transitional Marsh**

Mid-marsh areas are expected to naturally recruit Pacific pickleweed and will not require installation of pickleweed container plants. Species selected for installation in planting areas naturally occur within San Elijo Lagoon or the project vicinity and were selected to increase species diversity and support development of desirable habitat compositions appropriate for the lagoon. Plants will be propagated from cuttings or seed collected prior to construction activities in each basin. Plants in Table 2 will be installed in random groupings at approximately 9 feet on center for mid-marsh and 9 feet on center for high marsh, to provide a variety of species during the establishment phase and prevent the development of a single-species (i.e., pickleweed) monoculture. Some plants to be installed will be salvaged from areas impacted during construction; the remainder of plants will be rosepot liners for installation in mid-marsh areas, while high-marsh and transitional areas will receive a mix of rosepot liners and 1-gallon-size container plants. Plants will be installed by hand in holes of sufficient depth to accommodate root mass and attached soil. Holes will be back-filled with native soil, ensuring the entire root mass is covered and not exposed to open air and sunlight.





**Figure 5**  
**Planting/Revegetation Overview**



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**Table 2**  
**Conceptual Plant Palette and Seed Mix<sub>1</sub>**

Scientific Name	Common Name	Quantity per Acre	Spacing	Size
<b>Low-Marsh Plants</b>				
<i>Spartina foliosa</i>	California cordgrass	881	7 ft on center	Salvaged Plugs
<b>Mid Marsh Plants</b>				
<i>Arthrocnemum subterminale</i>	Parish's pickleweed	220	9 ft on center	Rosepot
<i>Batis maritima</i>	saltwort	67	9 ft on center	Rosepot
<i>Jaumea carnosa</i>	salty Susan	130	9 ft on center	Rosepot
<i>Limonium californicum</i>	sea lavender	60	9 ft on center	Rosepot
<i>Suaeda esteroa</i>	estuary sea blight	60	9 ft on center	Rosepot
<b>Total</b>		<b>537</b>		
<b>High-Marsh</b>				
<i>Arthrocnemum subterminale</i>	Parish's pickleweed	170	8 ft on center	Rosepot
<i>Cressa truxillensis</i>	alkali weed	20	8 ft on center	Rosepot
<i>Distichlis spicata</i>	salt grass	140	8 ft on center	Rosepot/Gal
<i>Frankenia salina</i>	alkali heath	190	8 ft on center	Rosepot
<i>Juncus acutus ssp. leopoldii</i>	spiny rush	10	8 ft on center	Gallon
<i>Limonium californicum</i>	sea lavender	35	8 ft on center	Rosepot/Gal
<i>Monanthochloe littoralis</i>	shoregrass	80	8 ft on center	Rosepot/Gal
<i>Suaeda taxifolia</i>	woolly sea blight	35	8 ft on center	Rosepot
<b>Total</b>		<b>680</b>		
<b>Upland Transitional Plants</b>				
<i>Adolphia californica</i>	California adolphia	10	8 ft on center	Gallon
<i>Coreopsis californica</i>	California coreopsis	20	8 ft on center	Gallon
<i>Distichlis spicata</i>	salt grass	140	8 ft on center	Rosepot
<i>Encelia californica</i>	California encelia	10	8 ft on center	Gallon
<i>Frankenia salina</i>	alkali heath	170	8 ft on center	Rosepot/Gal
<i>Isocoma menziesii</i> var. <i>vernonioides</i>	coastal goldenbush	30	8 ft on center	Gallon
<i>Iva hayesiana</i>	San Diego marsh elder	50	8 ft on center	Rosepot/Gal
<i>Lycium californicum</i>	California boxthorn	40	8 ft on center	Gallon
<i>Monanthochloe littoralis</i>	shoregrass	140	8 ft on center	Rosepot
<i>Peritoma arborea</i>	bladderpod	30	8 ft on center	Gallon
<i>Pluchea sericea</i>	arrow weed	40	8 ft on center	Gallon
<b>Total</b>		<b>680</b>		



Mid- and High-Marsh/Transitional Seed Mix		
Scientific Name	Common Name	Live Seed per Pound
<i>Cressa truxillensis</i>	alkali weed	3,420
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	salt marsh bird's beak	TBD
<i>Frankenian salina</i>	alkali heath	136,360
<i>Limonium californicum</i>	sea lavender	74,000
<i>Salicornia bigelovii</i>	annual pickleweed	TBD
<i>Triglochin maritima</i>	seaside arrowgrass	TBD

ft = feet; GAL = gallon; TBD = to be determined

<sup>1</sup>Species may be changed with the approval of the restoration ecologist.

Native seed collected within the lagoon prior to and during construction will be applied by hand to high-marsh and transitional areas and raked into the top ¼ inch of soil after the container plant installation. If seed is required from a seed supplier to supplement collections, it will be delivered to the site and labeled with the following information: species, purity, germination, percent live seed, quantity of seed in pounds, California State Agricultural Code seed certification including the supplier's name, geographic collection location, and collection date. Supplemental seed would be ordered and delivered in separate, original containers according to species and inspected by the restoration ecologist. If delivered seed differs from specified purity and germination rates, application rates will be adjusted accordingly to achieve the equivalent amount of pure live seed. The restoration ecologist will inspect seed prior to mixing with other species in the seed mix and applying it on-site.

## 2.6 TEMPORARY IRRIGATION METHODS

Within low-marsh restoration areas, irrigation will not be required as California cordgrass will receive daily tidal inundation. Mid-marsh areas are expected to require a minimal amount of irrigation (e.g., periodically in Year 1) as some of the areas will be only occasionally inundated with higher tides. These areas maybe irrigated by hand using hoses connected to a water truck parked in disturbed areas adjacent to the lagoon. Watering may occur as needed to support the growth and establishment of installed plants. In high-marsh and transitional restoration areas, a variety of irrigation methods may be employed. Methods could include hand irrigation with hoses connected to water trucks and temporary aboveground irrigation systems in areas where a water point of connection (POC) (e.g., a hydrant or other source with a backflow preventer) is available and where large contiguous restoration areas require the efficiency of scale that an irrigation system provides. If an area is large enough to require a temporary irrigation system, but is not sufficiently near a water POC, it may be feasible to install a system that will connect to a water truck. It is expected that high-marsh and transitional areas may require irrigation to supplement natural precipitation for approximately 2 to 3 years after installation. If required,

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irrigation of these areas would be on a set schedule in Year 1 and reduced in Years 2 and 3 as planting areas become established. Where irrigation systems are installed, they may be left in place for longer than the first 3 years to provide additional support to the installed plants during periods of extended drought, if necessary.

## **2.7 EROSION CONTROL AND BEST MANAGEMENT PRACTICES**

Prior to restoration of the west, central, or east basin, erosion control and best management practices (BMPs) will be implemented as needed to minimize erosion within the restoration sites in areas where the soils are exposed. Areas that are subtidal, mudflats, or low-marsh will not receive BMPs because they are regularly inundated by tides. Prior to the installation of native plants, BMPs in the planting area will be installed at the direction of the restoration ecologist and/or Storm Water Pollution Prevention Plan practitioner. A variety of methods may be employed to stabilize soils, including silt fence, fiber rolls, or other BMPs.

## **2.8 AS-BUILT CONDITIONS**

Once planting and the 120-day tidal hydrology and plant establishment period (the 120-day tidal hydrology and plant establishment period are discussed in detail in Chapter 3) are complete, the restoration ecologist and installation contractor will prepare a summary of as-built conditions. The summary will include changes to grading or elevations, habitat restoration limits, planting, or seeding and final bathymetry (lagoon topography).

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## **CHAPTER 3.0**

### **MAINTENANCE ACTIVITIES DURING HABITAT ESTABLISHMENT MONITORING PERIOD**

The following section outlines maintenance activities that will occur during the 120-day (4-month) tidal hydrology and plant establishment period and 5-year maintenance and monitoring period, including the maintenance schedule, nonnative plant (weed) control, irrigation, and potential remedial measures.

#### **3.1 ANTICIPATED MAINTENANCE SCHEDULE**

The installation contractor will be responsible for maintenance during the 120-day tidal hydrology and plant establishment period and for a 1-year guarantee period after the first 4 months. The 1-year guarantee period will not start until the 120-day tidal hydrology and plant establishment period has been accepted by agencies as meeting all success criteria. Maintenance will occur approximately two times per month for the first 4 months and monthly thereafter for the first year. After the first year, the maintenance contractor (same or different contractor serving as the installation contractor) will perform maintenance every 2 months during Year 2 and quarterly during Years 3, 4, and 5. Maintenance may be required more often to perform remedial measures (e.g., replanting, erosion control or additional weed control). During their respective contract performance periods, the installation contractor and maintenance contractor will coordinate with the restoration ecologist on a regular basis to determine the priority maintenance activities during different periods of the project.

#### **3.2 NONNATIVE PLANT CONTROL**

Nonnative plant species (weeds) will be removed from restoration areas using the best applicable methods to reduce competition from nonnative plant species and favor native plant establishment and growth.

Nonnative plants will be treated at the appropriate stage of the species life-cycle to maximize the efficacy of treatment. Treatment methods may include hand pulling, cutting, or herbicide application. Treatments will be timed so that weeds are treated and/or removed before they flower and set seed. Soil disturbance during treatment and removal of weeds will be minimized since soil disturbance can favor germination and growth of additional weeds. If herbicide is used to treat nonnative plants, application will be under the supervision of a person with a Qualified Applicators License from the California Department of Pesticide Regulation. Herbicide use will

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be in accordance with label instructions and in compliance with local, state, and federal laws. Nonnative plant debris that does not include flowers, seed, or rhizomes can be left in place as organic mulch. Other nonnative plant debris would be properly disposed of off-site. Nonnative plant treatments are expected to occur more frequently during the winter and spring months, typically between January and May, but may be required throughout the year depending on weed ecology and local conditions.

### **3.3 IRRIGATION**

Mid-marsh areas may require supplemental irrigation through the first year but are anticipated to establish quickly and receive adequate water from higher tides and seasonal precipitation in the following years. As reviewed in Section 2.6, transitional areas and some high-marsh areas may require irrigation for the first 2 to 3 years after installation to become established. Irrigation may occur in these areas at a frequency appropriate to supplement natural precipitation patterns, and the installation and maintenance contractor will coordinate with the restoration ecologist to agree on the appropriate frequency and duration of irrigation cycles during different times of the year. Irrigation may be conducted when needed to promote the establishment of native plants with hearty root systems. Infrequent deep watering is preferred over frequent shallow watering. Generally, irrigation is intended to supplement natural precipitation to simulate an above-average rainfall during the winter months and to be used modestly during summer months when plants enter a partial dormancy period. As different habitat areas become established, irrigation will be phased out gradually. When plants are established and self-sustaining, temporary irrigation system components (e.g., meters, mainline pipe, lateral pipes, and spray heads) will be removed.

### **3.4 REMEDIAL MEASURES**

If habitat restoration performance standards are not met at the end of each year during the first 5 years after construction, the restoration ecologist will determine the cause and propose remedial measures or adaptive management strategies. These will be presented to the project team and maintenance contractor for implementation. Remedial measures and adaptive management strategies will also be included in the annual report. Potential remedial measures may include revisions to nonnative species treatment methods and timing, revisions to irrigation methods and use, replacement planting or seeding, erosion control, and trash removal.

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## **CHAPTER 4.0**

### **RESTORATION SITE MONITORING AND REPORTING**

The following section outlines the monitoring and reporting program from installation to completion as well as performance standards. During the 5-year maintenance and monitoring period, the restoration sites will be surveyed for the presence of sensitive species and wildlife breeding and nesting (i.e., weed control, erosion control, supplemental planting and/or seeding, etc.) to avoid impacts to sensitive and nonsensitive wildlife species.

#### **4.1 POST-INSTALLATION QUALITATIVE AND QUANTITATIVE MONITORING**

The goal of monitoring is to proactively assess conditions of the restoration site (using both biological and physical metrics) and determine the best methods for addressing issues adversely affecting the restoration effort and assess site performance compared to success criteria. Qualitative and quantitative monitoring will be conducted. Qualitative monitoring will be conducted two times per month during the 120-day tidal hydrology and plant establishment period, monthly during the first year of the 5-year maintenance and monitoring program, and quarterly thereafter. Qualitative monitoring will focus on soil conditions, native plant health and vigor, native plant recruitment, presence of nonnative species, disease or pest problems, erosion problems, and visual assessments of slope stabilization and channel hydrology. Quantitative monitoring will be conducted on an annual basis during the late summer (i.e., August) toward the end of the growing season to capture each season's canopy expansion. Quantitative monitoring will focus on determining the cover of native plant species, diversity of native plant species, presence of any problematic nonnative plant species, hydrologic function, and biologic functionality of the lagoon.

Once native plant installation has been completed, the installation contractor will coordinate with the restoration ecologist to initiate the 120-day tidal hydrology and plant establishment period. Specific success criteria will be established for this period. During the first 4 months, qualitative monitoring will be conducted by the restoration ecologist every 2 weeks. The restoration ecologist will coordinate with the installation contractor to identify and prioritize maintenance activities. At the end of the 120-day tidal hydrology and plant establishment period, the restoration ecologist will conduct a quantitative monitoring visit to determine if the performance standards for the 120-day tidal hydrology and plant establishment period have been met. If remedial actions are required prior to sign-off of the 120-day tidal hydrology and plant establishment period, a "punchlist" will be provided by the restoration ecologist to the



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installation contractor. Completion of the punchlist will be required before the start of the 5-year maintenance and monitoring program.

Once the 120-day tidal hydrology and plant establishment period is complete, the 5-year maintenance and monitoring period will begin. Qualitative monitoring will occur monthly for the first year and quarterly for the remainder of the project. The restoration ecologist will prepare a quarterly memorandum that will focus on site issues such as nonnative plant treatments (efficacy and timing), irrigation schedule, native plant health and growth, supplemental planting or seeding needs, trash removal, and pest control. Additionally, the restoration ecologist will coordinate with the maintenance contractor on issues such as unauthorized site access, irrigation system repairs, erosion, prioritization of maintenance activities, support to field maintenance crew in identification of native and nonnative plant species, and irrigation timing/duration due to seasonal variability and condition of plants.

Quantitative monitoring will be conducted annually during the late summer (August) by the restoration ecologist during the end of the growing season to capture the maximum canopy expansion. Quantitative monitoring will consist of a combination of methods to ensure that aspects of habitat ecology, biology, and physical and hydrology functionality are accounted for allowing for a holistic assessment of the lagoon based on the project goals. Results from quantitative monitoring will be analyzed and discussed in the annual report and will include a comparison to the performance standards. If performance standards are not met, remedial actions or adaptive management strategies considered and implemented will be presented in the annual report. If, during quantitative monitoring, deficiencies are discovered that need to be addressed before the annual report is prepared, the restoration ecologist will coordinate with the maintenance contractor to implement remedial activities.

Quantitative monitoring will be conducted to determine how the site is responding to restoration efforts and identify remedial measures or adaptive strategies that should be employed to achieve the performance standards. Quantitative monitoring will assess different aspects of physical lagoon functionality, biology, and habitat variability. For the physical assessment, the following monitoring will be conducted: water quality, tidal flow velocity, tidal volume exchange, tidal amplitude, and channel stability. Monitoring to assess the biology of the lagoon could include native and nonnative plant cover, fish communities, avian surveys (i.e., general avian surveys, focused surveys by a permitted biologist for light-footed Ridgway's rail, and surveys by a permitted biologist for Belding's savannah sparrow), general wildlife surveys, benthic macroinvertebrate surveys, and eelgrass presence. Finally, the habitat will be assessed based on native plant community types and species composition within the marsh to ensure the proper habitats have begun to establish based on the performance standards.

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## **4.2 PHOTOGRAPHIC DOCUMENTATION**

Permanent photographic stations will be established after the initial habitat restoration installation activities are complete at each planting area as determined by the planting plan. Photographic stations will be marked in the field using (at a minimum) a wooden stake painted a bright color. Global Positioning System coordinates for each photo station will be recorded and included in the Year 1 annual report. Photographs will be taken annually and included in the annual reports. Photographic monitoring will also be performed during neap and spring tides to help assess hydrologic function; this will occur at permanent photographic stations as well.

## **4.3 PERFORMANCE STANDARDS**

Performance standards (Table 3) are established as a set of goals to determine and evaluate the success of native habitat restoration within salt marsh. Performance standards for the SELRP are based on the composition of the salt marsh, experience on similar restoration projects, and reasonable expectations of the condition of the restoration project at the end of 5 years. If performance standards are met at the end of 5 years, it is expected the lagoon will have a sufficient density of appropriate native plant species and be on track to develop well-established, high functioning, and self-sustaining habitat that will be resilient to a range of potential disturbances. Performance standards will be compared to quantitative monitoring data and analyzed in the annual report. If performance standards are not met at the end of each year, recommendations for remedial measures or adaptive strategies will be provided by the restoration ecologist and evaluated for implementation. Additional data collected from wildlife surveys will be used to make informed decisions for potential remedial actions if performance standards are not met (Table 4).

## **4.4 REPORTING**

Once the 120-day tidal hydrology and plant establishment period and “punchlist” items are complete, the restoration ecologist will coordinate with the installation contractor and prepare a memorandum documenting as-built conditions. The as-built conditions will include changes to the grading limits or elevations, restoration limits, and planting or seeding, as well as any issues that may have postponed completion of the 120-day tidal hydrology and plant establishment period.

**Table 3**  
**Annual Physical and Habitat Performance Standards**

<b>Year/Performance Period</b>	<b>Native Plant Cover</b>	<b>Nonnative Plant Cover</b>	<b>Container Plant Survival</b>	<b>Habitat Composition</b>	<b>Topography/ Channel Stability</b>	<b>Hydrology/ Water Quality</b>
120-Day Plant and Hydrology Establishment Period	Not Applicable <sup>1</sup>	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <5%, Other nonnative species <10%.	90%	Not Applicable <sup>2</sup>	No major erosion or accretion within created channels.	Regular daily tidal exchange. Average D.O. compared to baseline monitoring.
Year 1	10% Native Cover	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <2%, Other nonnative species <10%.	80%	Not Applicable <sup>2</sup>	No major erosion or accretion within created channels.	Designed range of tidal flow between neap and spring tides, and regular daily tidal exchange as evidenced by photography and presence of litter and wrack in the high-marsh. Average D.O. compared to baseline monitoring.
Year 2	25% Native Cover	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <2%, Other nonnative species <5%.	80%	Container plant species are beginning to expand, recruitment of same species adjacent to plants represent expansion.	No major erosion or accretion within created channels.	Full range of tidal flow between neap and spring tides, and regular daily tidal exchange as evidenced by photography and presence of litter and wrack in the high-marsh. Average D.O. compared to baseline monitoring.

<b>Year/Performance Period</b>	<b>Native Plant Cover</b>	<b>Nonnative Plant Cover</b>	<b>Container Plant Survival</b>	<b>Habitat Composition</b>	<b>Topography/ Channel Stability</b>	<b>Hydrology/ Water Quality</b>
Year 3	45% Native Cover	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <2%, Other nonnative species <5%.	80%	Container plant species expansion trending toward intersecting with other species plants.	No major erosion or accretion within created channels.	Full range of tidal flow between neap and spring tides, and regular daily tidal exchange as evidenced by photography and presence of litter and wrack in the high-marsh. Average D.O. compared to baseline monitoring.
Year 4	60% Native Cover	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <2%, Other nonnative species <5%.	75%	Container plant island expansion trending toward intersecting with other species plant islands. Native species recruitment is occurring throughout the site.	No major erosion or accretion within created channels.	Full range of tidal flow between neap and spring tides, and regular daily tidal exchange, as evidenced by photography and presence of litter and wrack in the high-marsh. Average D.O. compared to baseline monitoring.
Year 5	75% Native Cover	Nonnative perennial species (Cal-IPC threat of High or Moderate) 0%, Nonnative annual species (Cal-IPC threat of High or Moderate) <2%, Other nonnative species <5%.	75%	Container plant species have intersected over 20% of the site. Native species recruitment is occurring throughout the site.	No major erosion or accretion within created channels.	Full range of tidal flow between neap and spring tides, and regular daily tidal exchange as evidenced by photography and presence of litter and wrack in the high-marsh. Average D.O. compared to baseline monitoring.

Cal-IPC = California Invasive Plant Council; D.O. = dissolved oxygen

<sup>1</sup> It is expected that native plants installed in a variety of container sizes and in limited numbers will provide negligible cover after a period as short as 4 months.

<sup>2</sup> Habitat is not expected to develop in a period as short as 16 months. Some plant species may expand but it is not practicable to expect habitat to develop on a large scale.

**Table 4**  
**Wildlife Surveys to Be Conducted Supporting Performance Standards**

<b>Type of Survey</b>	<b>Purpose/Need</b>	<b>Timing</b>
Benthic Macroinvertebrates	Evaluate the health and functioning of the enhanced lagoon, due to importance in estuarine food webs. Benthic invertebrates can affect, and be affected by, physical processes, such as erosion, sedimentation, and nutrient cycling. Monitoring would include sampling of both epifauna and infauna.	Annually during the summer, and concurrently with the fish sampling protocols
Fish	Post-construction monitoring for fish in channels will begin immediately following construction and will consist of density and species richness surveys. Surveys will be conducted at designated locations.	Biannually (once in June and once in August)
General Avian Survey/ General Wildlife Survey	Monitoring of use of the lagoon by water-dependent birds, including shorebirds, waterfowl, gulls, terns, and others, to assist in determining whether the project has met its goals and objectives for improving habitats for bird species. Other wildlife will be recorded as incidental observations.	Monthly
Light-Footed Ridgway's Rail ( <i>Rallus obsoletus levipes</i> )	Ridgway's rail is a year-round resident of the lagoon and may utilize many of the habitat types within the lagoon for foraging or nesting. Surveys for this species would inform continued habitat availability for light-footed Ridgway's rail within restoration areas and changes in numbers of breeding pairs between years.	Annual protocol surveys by permitted biologists for this species.
Belding's Savannah Sparrow ( <i>Passerculus sandwichensis beldingi</i> )	Belding's savannah sparrow utilize pickleweed marsh in all areas of the lagoon. Surveys for this species would inform continued habitat availability for Belding's savannah sparrow within restoration areas and changes in numbers of breeding pairs between years.	Annual surveys by permitted biologists for this species will occur five times during March 1 through May 31.

A qualitative monitoring memorandum will be prepared quarterly by the restoration ecologist. This memorandum will focus on site issues such as nonnative plant treatments (efficacy and timing), irrigation operation and schedule, native plant health and potential need for container plant replacement, unauthorized site access, erosion, trash removal, and pest control. This memorandum will be designed to assist the installation and/or maintenance contractor with the prioritization of work activities.

A monitoring report will be prepared annually; this document will include both qualitative and quantitative methods and data. The annual report will assess different aspects of the physical functionality of the lagoon, biology (including wildlife data collected throughout the year), and condition of habitats. The report will also compare quantitative monitoring data to project performance standards. An analysis of monitoring data will assist in determining needed remedial measures or adaptive management strategies if performance standards are not achieved.

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at the end of each year. Photographic documentation will also be provided in the annual report. Table 5 outlines timing of monitoring and the schedule for reporting.

**Table 5**  
**Monitoring and Reporting Schedule**

<b>Time Period</b>	<b>Qualitative Monitoring</b>	<b>Quantitative Monitoring</b>	<b>Reporting Schedule</b>
120-day PEP	2 times per month	At the end of the 120-day PEP	As-built Memo at the end of the 120-day PEP.
Year 1	monthly	Annually (August)	Quarterly qualitative monitoring memo at the end of each quarter. Annual Report at the end of each year.
Year 2	quarterly	Annually (August)	Quarterly qualitative monitoring memo at the end of each quarter. Annual Report at the end of each year.
Year 3	quarterly	Annually (August)	Quarterly qualitative monitoring memo at the end of each quarter. Annual Report at the end of each year.
Year 4	quarterly	Annually (August)	Quarterly qualitative monitoring memo at the end of each quarter. Annual Report at the end of each year.
Year 5	quarterly	Annually (August)	Quarterly qualitative monitoring memo at the end of each quarter. Annual Report at the end of each year.

PEP = tidal hydrology and plant establishment period



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## CHAPTER 5.0

### LONG-TERM AND ADAPTIVE MANAGEMENT

Due to the complexity of the lagoon ecosystem and the goals of restoring lagoon functionality and habitat conditions, adaptive management strategies will be implemented in the event that unforeseen events damage the restoration effort or functionality of the lagoon. While adaptive management is a process used to help anticipate potential or unforeseen events, a long-term monitoring program also helps to drive adaptive management strategies and allows for potential problems to be predicted using data collected over time.

Provided below is a review of potential problems and solutions that may be implemented as adaptive management strategies.

- *Potential Problem:* Poor native seed germination and establishment  
*Potential Solutions:* Apply additional or alternative native seed, or install additional native container plants to compensate for poor seed germination. Conduct agronomic soil sampling and amend problematic soils as recommended by an independent soil laboratory.
- *Potential Problem:* Poor native plant survival, growth, and establishment  
*Potential Solutions:* Adjust species planting based on soil moisture conditions; install additional or alternative native plants, etc. Conduct agronomic soil sampling and amend problematic soils as recommended by an independent soil laboratory.
- *Potential Problem:* Herbivory  
*Potential Solutions:* Allow herbivory to continue for certain species if it will not result in plant mortality; provide temporary cages around species that are being overgrazed, etc.
- *Potential Problem:* Invasion of invasive nonnative species from the project vicinity or species new to the vicinity  
*Potential Solutions:* Increase invasive nonnative plant control on-site; improve native plant cover on-site to lessen invasive nonnative plant invasion locations; address to the extent feasible off-site invasive plant population(s), etc.
- *Potential Problem:* Trash dumping  
*Potential Solutions:* Install extra bins and/or signage; provide trash removal, increased patrols, etc.

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- *Potential Problem:* Channel bank stability failure  
*Potential Solutions:* Determine if bank failure is part of a natural geomorphic process and natural reshaping of a channel cross-section and bank, or an adverse condition that should be addressed. If an adverse condition, determine options for repair and stabilization; include riprap. Internal marsh channels should not need such remediation, as their evolution is expected to occur for a long time. However, perimeter channels such as that along Highway 101 and the main channel near bridges will need to be monitored.
  - *Potential Problem:* Flood-Related Erosion Impacts  
*Potential Solutions:* Address significant erosion problems; monitor degree of natural plant recruitment (which is typically positive after flood events); conduct channel bank repair if needed, and/or supplemental native planting and seeding if needed, etc.
  - *Potential Problem:* Channel accretion  
*Potential Solutions:* Channel adjustment is expected over the long term, which may include shifting, lowering, aggradation (accretion), etc., as a natural process to bring the entire wetland hydraulic system into some form of equilibrium. Therefore, actions to respond to geomorphic adjustment to interior marsh channels may not be necessary. However, if adverse channel adjustments occur, and if access and options to improve channel conditions do not cause significant temporary impacts, then sediment may be removed from locations where accretion is occurring above allowed thresholds and banks stabilized as needed.

**APPENDIX R**

**CONSIDERATION OF NEW INFORMATION**

**UNDER CEQA SECTION 15088.5**



## **APPENDIX R**

### **Consideration of New Information under CEQA Section 15088.5**

#### **Purpose of This Appendix**

Based on statutory requirements of the California Environmental Quality Act (CEQA), the County of San Diego has determined that new information available since the time of publication of the Draft Environmental Impact Report (EIR) for the San Elijo Lagoon Restoration Project does not meet the legal standards for recirculation. New information regarding vegetation, light-footed Ridgway's rail (*Rallus obsoletus levipes*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), and burrowing owl (*Athene cunicularia*) in the vicinity of San Elijo Lagoon is now available. Available new information was considered for potential changes to environmental impacts identified in the EIR, including Alternative 1B-Refined. This newly available biological information is incorporated into the administrative record of the EIR through this appendix, which discloses the data and documents the reasons why new information does not necessitate recirculation of the EIR under CEQA requirements.

#### **CEQA Legal Requirements for Recirculating an EIR**

According to CEQA Guidelines (Section 15088.5), recirculation of an EIR is required when "significant new information" is added to an EIR after the draft EIR is made available for public review, but prior to certification. Information can include changes in the project or environmental setting, as well as additional data or other information. However, new information added to an EIR is not considered significant unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon either a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect. CEQA Guidelines provide four examples of what is considered "significant new information" that would necessitate recirculation:

- (1) Disclosure that a new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
- (2) Disclosure that a substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
- (3) Disclosure that a feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.
- (4) Disclosure that the draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

CEQA Guidelines (Section 15088.5 [b]) further clarifies that recirculation is not required where the new information added to the EIR merely clarifies, amplifies or makes insignificant modifications in an adequate EIR. Additionally, a lead agency's decision not to recirculate an EIR must be supported by substantial evidence in the administrative record (Section 15088.5 [e]).



## **New Available Information since Draft EIR Publication**

As described throughout the Draft EIR, biological conditions within San Elijo Lagoon are dynamic, both with respect to habitat conversion and population fluctuation of sensitive species. Since release of the Draft EIR for public review, updated information regarding emerging low-marsh and specific sensitive bird species has become available.

Focused surveys conducted in 2015 show that continued habitat conversion, specifically an increase in low-marsh vegetation, usually replacing mudflats, has occurred within the central and west basins. Survey information from 2014 and 2015 for two bird species, light-footed Ridgway's rail and Belding's savannah sparrow, has also been received. A single burrowing owl, which has not been observed in previous surveys, was detected within the San Elijo Ecological Reserve (Reserve) in 2015. Information regarding changes in vegetation as well as bird species is provided below. The new information is considered relative to the relevant significance criteria (Criteria A and C) and significance conclusions from the Biological Resources section of the Draft EIR.

### Significance Criteria

#### *Vegetation*

The EIR significance criterion applicable to the new vegetation information is Criterion A from Section 3.6 of the EIR, Biological Resources, which states that a significant impact would occur if:

The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

For the purposes of the EIR, the term "substantial" is defined as a temporary or permanent change that would cause a loss of more than 50 percent of a sensitive habitat for more than 12 months. This threshold was developed because greater than 50 percent loss of any sensitive habitat is considered to have the potential to threaten the continued existence of a sensitive species known to occur within San Elijo Lagoon.

#### *Sensitive Species*

The EIR significance criterion applicable to the new information relative to sensitive bird species is Criterion C from Section 3.6 of the EIR, Biological Resources, which states that a significant impact would occur if the Project:

Would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special-status species listed in local or regional plans, policies, or regulations, or by CDFW or USFWS or the population or habitat of rare, threatened, or endangered species or species of special concern.

Within the EIR, the term "substantial" is defined as a temporary or permanent change that would cause a decline in the local population of a species to below self-sustaining levels within San Elijo Lagoon through a:

- 50 percent decline in the lagoon breeding population (i.e., movement out of lagoon and not direct mortality);
- temporary loss of more than 50 percent of the suitable nesting habitat for that population at the lagoon; or
- direct loss of adults, eggs, or young of species listed as endangered or threatened

In addition, an increase in noise to a level that would substantially modify breeding or foraging behavior of rare, threatened, or endangered species, or species of special concern, would be considered significant under Criterion C from Section 3.6 of the EIR, Biological Resources.

A summary of the resources affected by the new information, as well as the impact and significance conclusion identified in the Draft EIR, is included in the table below. The table focuses on the worst-case impact conditions, which were primarily associated with construction inundation requirements under Alternatives 2A and 1B. In the Draft EIR, Alternative 1A did not require inundation and therefore did not result in significant impacts from elevated water levels in vegetated wetland habitats. As summarized below, none of the significance conclusions in the Draft EIR would be changed by the new information. More detailed evaluation of the new information and rationale for conclusion is provided in the subsequent text.

<b>Biological Resource</b>	<b>New Information</b>	<b>Impact Identified in Draft EIR</b>	<b>Significance Conclusion in Draft EIR</b>	<b>Significance Conclusion with New Information</b>
Low-Marsh Habitat	Increase of approximately 12 acres of low-marsh habitat present in the Biological Study Area in 2015, relative to 2012 habitat mapping referenced in DEIR	Short-term restoration construction would result in greater than 50 percent temporal loss of low coastal salt marsh, thus considered significant under CEQA (Criterion A)	Significant (Alts. 2A and 1B)	Impact remains Significant, but not substantially more severe under Alts. 2A and 1B).  Impacts to low-marsh habitat under Alt. 1B-Refined would be less than 50 percent and thus, less than significant.
Light-footed Ridgway's Rail	30/59 pairs observed in 2014/2015 surveys; DEIR disclosed 31/20 pairs observed in 2012/2013, respectively	Because greater than 50 percent of breeding habitat would remain available during construction and implementation of project design features would avoid impacts to individuals, the impact would be less than significant under CEQA (Criterion C)	Less than Significant (All alts.)	Impact remains Less than Significant (All alts.)
		Temporary construction noise within the lagoon would negatively impact breeding and foraging	Significant (All alts.)	Impact remains Significant, but not substantially more severe.

Biological Resource	New Information	Impact Identified in Draft EIR	Significance Conclusion in Draft EIR	Significance Conclusion with New Information
		behavior and would be significant under CEQA (Criterion C).		(All alts.)
Belding's Savannah Sparrow	Slightly lower population levels observed in 2014 and 2015 compared to historical surveys; 104/105 pairs observed in 2014/2015 respectively; DEIR disclosed 136 pairs observed in 2009 surveys	The temporary loss of greater than 50 percent of Belding's Savannah Sparrow nesting habitat would result in a significant impact under CEQA (Criterion C)	Significant (Alts. 2A and 1B)	Impact remains Significant, but not substantially more severe under Alts. 2A and 1B.  Impacts to nesting habitat under Alt. 1B-Refined would be less than 50 percent and therefore less than significant.
		Temporary construction noise within the lagoon would negatively impact breeding and foraging behavior and would be significant under CEQA (Criterion C).	Significant (All alts.)	Impact remains Significant, but not substantially more severe. (All alts.)
Burrowing Owl	One owl observed in 2015; none detected in Draft EIR surveys	No impact identified per Criterion C; species was not known to be present and suitable nesting habitat does not exist on site	No conclusion stated	No Impact

### Habitat Conversion

A focused update to vegetation mapping in the central and west basins of San Elijo Lagoon was conducted in 2015 to document the continued conversion of unvegetated to vegetated wetland types. As discussed in the EIR, biological conditions of the lagoon are dynamic and relatively rapid conversion of unvegetated to vegetated marsh has been occurring since management of the inlet was initiated in the mid-1990s. As anticipated, updated vegetation mapping indicates an increase in low-marsh habitat compared to mapping used for analysis at the time of EIR preparation.

Between 2012 (the baseline for the EIR biological analysis) and 2015, an increase of approximately 12 acres in low-marsh habitat was detected in the central and west basins, primarily in areas that were previously unvegetated functional mudflats. Compared to the approximately 13 acres in the Draft EIR, this new habitat information represents an increase of approximately 90 percent in low-marsh habitat. The extent of the significant, short-term impacts to the new total low-marsh habitat is estimated to be 92 to 95 percent, depending on the alternative, as defined in the Draft EIR. This percentage would remain approximately the same as that identified in the Draft EIR because expansion of low-marsh has occurred both inside and outside the limits of disturbance. Under Alternative 1B-Refined, as described in

the Preface to this Final EIR, short-term impacts to low marsh would be reduced to 49 percent and would not be significant. The modified impacts would therefore not be considered a substantial increase in the severity of the existing significant environmental impact. The significance of habitat impacts identified under CEQA would remain unchanged and would not be substantially worsened. No new sensitive habitat types were identified in the updated vegetation mapping; thus, no new significant impacts would result from the updated habitat mapping information.

Based on the analysis presented above, updated habitat mapping would not constitute significant new information that would create a new impact or cause an impact to substantially increase in severity.

#### Light-footed Ridgway's Rail

The number of light-footed Ridgway's rail pairs observed in the Reserve in 2014 and 2015 was found to be higher than counts documented in the Draft EIR. There were 59 pairs observed in 2015 and 30 pairs in 2014. The Draft EIR disclosed 20 pairs in 2013 and 31 pairs in 2012. While new count information shows an increase in the number of light-footed Ridgway's rails within the lagoon, the conclusion remains less than significant and there would not be a new significant impact as described below.

Temporary, construction-related impacts to light-footed Ridgway's rails were evaluated in the Draft EIR based on the three points described above (definition of substantial for Criterion C). A significant impact would occur if more than 50 percent of the population was required to leave the lagoon because of habitat loss during construction. This migration would be anticipated if suitable refugia in the lagoon were not available for those birds displaced during construction. More than one-third of the pairs identified in 2015 surveys are located outside of the direct project impact area (Zemba 2015; Patton 2015), and refugia have been identified in the southwestern and northwestern part of the central basin. Additionally, construction across the more than 700 acre lagoon would be phased, and areas not under active construction could also provide refugia (see EIR Figures 2-16 and 2-17). These two factors would enable additional individuals to remain in the lagoon, either in refugia areas or in areas not under active construction. Therefore, even with an increase in individuals, more than 50 percent of the population would continue to be accommodated within the lagoon.

More than 50 percent of suitable nesting habitat for light-footed Ridgway's rail would remain available through construction. This bird species utilizes both low-marsh and coastal brackish marsh habitat, which encompasses over 130 acres of the lagoon. While the expanded low-marsh vegetation in 2015 increases the amount of available nesting and/or foraging habitat for light-footed Ridgway's rail by 12 acres, the actual project impact to suitable acreage would be only 4 percent greater than disclosed in the Draft EIR (on the order of 32 percent total). This would not cause the impacted habitat for the light-footed Ridgway rail to approach or exceed the 50 percent threshold, and temporary impacts would continue to be less than significant. There would not be a substantial change in the impact, and the conclusion in the EIR would remain unchanged.

Measures such as initiation of clearing and grubbing outside of the breeding season (PDF-12), flushing of suitable habitat prior to construction activities (PDF-13, PDF-18, PDF-19), initiation of flooding outside of the breeding season (PDF-17), provision of refugia (PDF-22), and implementation of a habitat

enhancement plan to enhance target locations of unimpacted habitat (PDF-22) would protect light-footed Ridgway's rail from direct loss or mortality. The measures are selected from EIR Table 2-26, entitled Summary of Project Design Features/Monitoring Commitments and Minimization Measures. They have been incorporated into the project to minimize potential for direct loss of birds and have been designed to be effective for light-footed Ridgway's rails, regardless of the population size. Thus, the project would avoid direct loss of adults, eggs, or young and the impact would continue to be less than significant.

As described in the EIR, long-term improved conditions for nesting and foraging habitat with project implementation are expected to benefit the light-footed Ridgway's rail populations at San Elijo Lagoon and outweigh the temporary loss of habitat acreage. Thus, the increased light-footed Ridgway's rail population in the lagoon could benefit from the long-term improved habitat conditions. The breeding population would not decline by 50 percent and more than 50 percent of suitable habitat would remain available. Conclusions in the EIR would remain unchanged, and the impact would continue to be less than significant.

As identified in the EIR, short-term noise impacts to nesting birds would be unavoidable and would be temporarily significant throughout the duration of construction. While more birds would be subject to the noise, this impact would not change nor would it be substantially worsened by the presence of additional birds. The temporary construction noise impact would continue to be significant and unavoidable, and the conclusion in the EIR per Criterion C would remain unchanged.

Because there are no new impacts or substantially increased impacts, no new or modified mitigation is required.

Based on the analysis presented above, updated light-footed Ridgway's rail observations in 2014 and 2015 would not constitute significant new information that would create a new impact or cause an impact to substantially increase in severity.

#### Belding's Savannah Sparrow

Belding's savannah sparrow surveys were conducted in 2014 and 2015. Information from 2014 and 2015 surveys identified slightly lower population levels, but similar spatial distributions within the lagoon, as compared to those identified in the EIR analysis. The 2014 survey identified approximately 104 pairs, and the 2015 survey documented 105 pairs. The 2009 survey, which is included in the Draft EIR as most recent data available, documented 136 pairs. As described below, the updated information does not create a new significant impact or substantially increase an existing impact as identified in the Draft EIR.

In the short term, the EIR discloses a greater than 50 percent reduction in nesting mid- and high-marsh habitat for Belding's savannah sparrow, for Alternatives 2A and 1B. This reduction is considered a temporary habitat loss that would result in a significant and unavoidable impact to this bird species for those two project alternatives. Under Alternatives 1B-Refined and 1A, this impact is less than significant because less than 50 percent of suitable nesting habitat would be impacted, as described in the Preface and Section 3.6 of the EIR. Updated habitat mapping would not modify the impact conclusions or

increase the severity because this particular bird species does not nest in mudflat or low-marsh habitat. Population size and distribution are similar to that in the EIR analysis; therefore, no substantial change would occur to the impacts identified in the EIR.

Measures such as clearing and grubbing outside of the breeding season (PDF-12); targeted enhanced at unimpacted suitable habitat for Belding's savannah sparrow (PDF-22); and implementation of the habitat enhancement plan with measures such as removal of perches used by competitor birds, removal of non-pickleweed vegetation, and predator control (PDF-21); would reduce impacts to Belding's savannah sparrow, regardless of the population. Impacts would remain significant and unmitigated for Alternatives 2A and 1B, and would be less than significant for Alternative 1B-Refined and 1A.

The EIR demonstrated how the long-term improved conditions for nesting and foraging habitat for the Belding's savannah sparrow would outweigh the loss of habitat acreage. Ultimately, the project is expected to benefit Belding's savannah sparrow populations at San Elijo Lagoon due to long-term improved habitat conditions, and the breeding population would not decline by 50 percent. The long-term impact to Belding's savannah sparrow would continue to be less than significant, and conclusions in the EIR would remain unchanged.

Measures incorporated into the project to minimize potential for direct loss of bird species have been designed to be effective for Belding's savannah sparrow, regardless of the population. Thus, the project would avoid direct loss of adults, eggs, or young and the impact would continue to be less than significant.

As identified in the EIR, short-term noise impacts to nesting birds would be unavoidable and would be temporarily significant throughout the duration of construction. The Belding's savannah sparrow population within the lagoon would be subject to the noise and this impact would not change nor would it be substantially worsened. Project Design Features would be incorporated to minimize noise generation during construction (PDF-8 and PDF-9; see EIR Table 2-26, Summary of Project Design Features/Monitoring Commitments and Minimization Measures). No new feasible mitigation or avoidance measures are available and the temporary construction noise impact per Criterion C would continue to be significant and unavoidable.

Based on the analysis presented above, the Belding's savannah sparrow populations observed in 2014 and 2015 would not constitute significant new information that would create a new impact or cause an impact to substantially increase in severity.

#### Burrowing Owl

The burrowing owl was described in the project's Biological Technical Report as a special-status species with the potential to occur and breed within the biological study area, but was not detected during surveys. Thus, the February 2015 observation of a single burrowing owl within the Reserve is new information that was not available at the time of writing or publication of the Draft EIR.



Though impacts to this specific species were not previously identified in the EIR as the burrowing owl was not known to be present in the lagoon, the recent observation does not create a new significant impact or substantially increase an existing impact as identified in the Draft EIR. The observation of the bird was located outside the limits of disturbance, and typical supporting native habitat is not present in the lagoon.

For this reason, the new information regarding the presence of burrowing owl within the San Elijo Lagoon does not constitute a new significant impact or substantially increase the severity of an existing impact.

### **Summary**

Based on the information and analysis provided within this appendix, the new information available since the publication of the Draft EIR would not change the EIR or analysis in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect. The new information provided in this appendix does not cause a new significant environmental impact to result from the project or from a new mitigation measure proposed to be implemented. The new information also does not cause a substantial increase in the severity of an identified environmental impact. For these reasons, the County of San Diego has determined that the legal requirements for EIR recirculation as set forth by CEQA are not met and recirculation of the document is not necessary.

### **References**

- Zemba, Richard. 2015. Email Communication between Richard Zemba, Natural Resources Director, Orange County Water District and Cindy Kinkade, AECOM regarding updated light-footed Ridgway's rail observations in 2015. July 15.
- Patton, Robert. 2015. Email Communication between Robert Patton, Consulting Biologist and Liz Schneider, AECOM regarding updated Belding's savannah sparrow surveys in 2014 and 2015. October 22.