DRAFT

INITIAL STUDY
MITIGATED NEGATIVE DECLARATION

TIJUANA ESTUARY SEDIMENT FATE AND TRANSPORT STUDY

January 2008

State of California
DEPARTMENT OF PARKS AND RECREATION

MITIGATED NEGATIVE DECLARATION

PROJECT: **TIJUANA ESTUARY SEDIMENT FATE AND TRANSPORT STUDY**

LEAD AGENCY: California Department of Parks and Recreation

AVAILABILITY OF DOCUMENTS: The Initial Study for this Mitigated Negative Declaration is available for review in hard copy at the following locations:

- San Diego Coast District Headquarters
  California Department of Parks & Recreation
  4477 Pacific Coast Highway
  San Diego, California 92110

- Tijuana Estuary Visitor Center
  301 Caspian Way
  Imperial Beach, CA 91932

- City of San Diego Central Library
  820 Imperial Beach Blvd.
  Imperial Beach, California 91932

The Initial Study for this Mitigated Negative Declaration is also available electronically at: http://www.tijuanaestuary.com/visitors_center.asp.

PROJECT DESCRIPTION:

The project consists of the implementation of a Sediment Fate and Transport Study within Border Field State Park at the Tijuana River National Estuarine Research Reserve. The project would utilize sorted sediment from the Goat Canyon sediment basin and deposit it in designated areas along the beach south of the Tijuana River mouth. While the study would be conducted near important wetland habitat areas, no work would occur within these areas.

The project would include:

- Transportation and deposition of 60,000 cubic yards of sediment from the Goat Canyon sediment basin facility;
- Use of sediment previously sorted at an existing staging area;
- Transportation from the Goat Canyon sediment basins to the beach south of the Tijuana River mouth via haul truck;
- Commencement in the fall/winter of 2008/2009, so the placement of material in the nearshore would coincide with periods of fall/winter low tides;
- Sediment placement in three phases; Phases 1 and 2 would each involve transport and deposition of approximately 10,000 cubic yards of sediment over a maximum duration of 10 days; Phase 3 would involve transport and deposition of approximately 40,000 cubic yards of sediment over a maximum duration of 60 days;
- Extensive physical monitoring of the placed materials in the oceanic environment conducted by the U.S. Geological Survey to determine potential impacts on marine habitats as a result of sediment movement; and

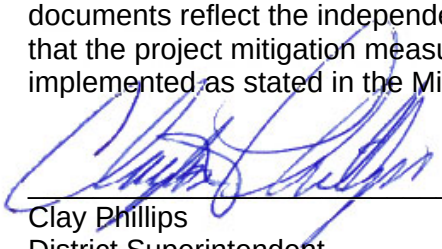
- Biological monitoring of the surrounding environment to determine potential impacts on marine flora and fauna and their habitat as a result of sediment movement.

The public hearing for the proposed project is Monday, February 11, 2008 at 6:30 p.m. at the Tijuana Estuary Visitor Center (address on previous page).

A copy of the Initial Study is attached. Questions or comments regarding this Initial Study/Mitigated Negative Declaration may be addressed to:

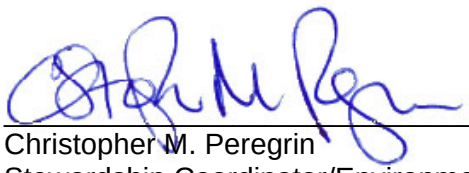
Christopher M. Peregrin
Tijuana River National Estuarine Research Reserve
Silver Strand State Beach, Border Field State Park
301 Caspian Way
Imperial Beach, CA 91932

Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Parks and Recreation (CDPR) has independently reviewed and analyzed the Initial Study and Mitigated Negative Declaration for the proposed project and finds that these documents reflect the independent judgment of CDPR. CDPR, as lead agency, also confirms that the project mitigation measures detailed in these documents are feasible and will be implemented as stated in the Mitigated Negative Declaration.



Clay Phillips
District Superintendent

1/29/08
Date



Christopher M. Peregrin
Stewardship Coordinator/Environmental Scientist

1/29/08
Date

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION AND REGULATORY GUIDANCE

The Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by the California Department of Parks and Recreation (CDPR) to evaluate the potential environmental effects of the proposed Tijuana Estuary Sediment Fate and Transport Study (Science Study) at the Tijuana River National Estuarine Research Reserve (TRNERR), San Diego, in San Diego County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 *et seq*., and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq*.

An Initial Study is conducted by a lead agency to determine if a project may have a significant effect on the environment [CEQA Guidelines §15063(a)]. If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the lead agency determines that revisions in the project plans or proposals made by or agreed to by the applicant to mitigate the potentially significant effects to a less than significant level, a Mitigated Negative Declaration may be prepared instead of an EIR [CEQA Guidelines §15070(b)]. The lead agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

1.2 LEAD AGENCY

The lead agency is the public agency with primary approval authority over the proposed project. In accordance with CEQA Guidelines §15051(b)(1), "the lead agency will normally be an agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The lead agency for the proposed project is CDPR. The contact person for the lead agency is:

Christopher M. Peregrin
Tijuana River National Estuarine Research Reserve
Border Field State Beach, Border Field State Park
301 Caspian Way
Imperial Beach, CA 91932
(619) 575-3613 ext. 332

All inquiries regarding environmental compliance for this project, including comments on this environmental document should be addressed to Christopher M. Peregrin above.

1.3 PURPOSE AND DOCUMENT ORGANIZATION

The purpose of this document is to evaluate the potential environmental effects of the proposed Science Study at the TRNERR. Mitigation measures have also been incorporated into the project to eliminate any potentially significant impacts or reduce them to a less-than-significant level.

This document is organized as follows:

- Chapter 1 - Introduction.
  This chapter provides an introduction to the project and describes the purpose and organization of this document.

- Chapter 2 - Project Description.
  This chapter describes the reasons for the project, scope of the project, and project objectives.

- Chapter 3 - Environmental Setting, Impacts, and Mitigation Measures.
  This chapter identifies the significance of potential environmental impacts, explains the environmental setting for each environmental issue, and evaluates the potential impacts identified in the CEQA Environmental (Initial Study) Checklist. Mitigation measures are incorporated, where appropriate, to reduce potentially significant impacts to a less-than-significant level.

- Chapter 4 - Mandatory Findings of Significance
  This chapter identifies and summarizes the overall significance of any potential impacts to natural and cultural resources, cumulative impacts, and impact to humans, as identified in the Initial Study.

- Chapter 5 - Summary of Mitigation Measures.
  This chapter summarizes the mitigation measures incorporated into the project as a result of the Initial Study.

- Chapter 6 - References.
  This chapter identifies the references and sources used in the preparation of this IS/MND. It also provides a list of those involved in the preparation of this document.

- Chapter 7 - Report Preparation
  This chapter provides a list of those involved in the preparation of this document.

1.4 SUMMARY OF FINDINGS

Chapter 3 of this document contains the Environmental (Initial Study) Checklist that identifies the potential environmental impacts (by resource area) and a brief discussion of each impact resulting from implementation of the proposed project.

Based on the IS and supporting environmental analysis provided in this document, together with the incorporation of mitigation measures into the project description, the proposed Science Study would result in less than significant impacts for the following issues: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities and service systems.

In accordance with §15064(f) of the CEQA Guidelines, a MND shall be prepared if the proposed project will not have a significant effect on the environment after the inclusion of mitigation measures in the project. Based on the available project information and the environmental analysis presented in this document, there is no substantial evidence that, after the incorporation of mitigation measures, the proposed project would have a significant effect on the environment. It is proposed that a MND be adopted in accordance with the CEQA Guidelines.

CHAPTER 2
PROJECT DESCRIPTION

2.1 INTRODUCTION

The CDPR, in partnership with the California State Coastal Conservancy (SCC), the California Coastal Sediment Management Workgroup (CSMW)[1], the TRNERR, and the Southwest Wetlands Interpretive Association are proposing to implement a Sediment Fate and Transport Study ("Science Study") primarily within Border Field State Park (BFSP) at the TRNERR. The proposed project would utilize sorted sediment obtained from the Goat Canyon sediment basins, and include transportation and deposition of 60,000 cubic yards of this sediment to designated areas on the beach south of the Tijuana River mouth. Sediment would be sorted at an existing staging area and transported from the sediment basins in Goat Canyon to the beach approximately 0.5 miles south of the Tijuana River mouth. Sediment would be transported via haul truck along Monument Road and/or a dirt road that serves as a horse trail (horse trail road), to the beach. Sediment transport would commence in the fall/winter of 2008/2009 and placement of the material in the nearshore would occur during periods of fall/winter mid and low tides. Dispersion of the placed materials in the oceanic environment would then be monitored by the U.S. Geological Survey (USGS) according to the proposed Science Study to determine whether any adverse impacts would arise from the use of the sorted sediments. Results of the Science Study regarding the transport and fate of fine grained sediments in the surf zone would be published as a USGS professional paper.

The Science Study is intended to provide information that would assist in evaluating alternatives for wetland restoration, provide a more robust assessment of coastal sediment resources available for beneficial reuse, promote more science-based decision-making with regards to materials appropriate for beach nourishment, and possibly reduce the expenditure of public resources and associated carbon footprint of current activities designed to protect the Tijuana Estuary from adverse impacts.

The Initial Study for the proposed project has been prepared in conformance with specifications of CEQA, and the State CEQA Guidelines. Compliance with CEQA is required due to state and local jurisdiction over the proposed project.

CDPR would assume the lead agency role under CEQA, with the SCC, California Coastal Commission (CCC), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), San Diego Regional Water Quality Control Board (RWQCB), California State Lands Commission and the Cities of San Diego and Imperial Beach acting as local and state responsible, interested, or trustee agencies.

[1] CSMW is comprised of divisions of the California Resources Agency and the USACE. For more information, visit http://www.dbw.ca.gov/CSMW.

2.2 PROJECT LOCATION

The Project area includes both the Tijuana Estuary and beach

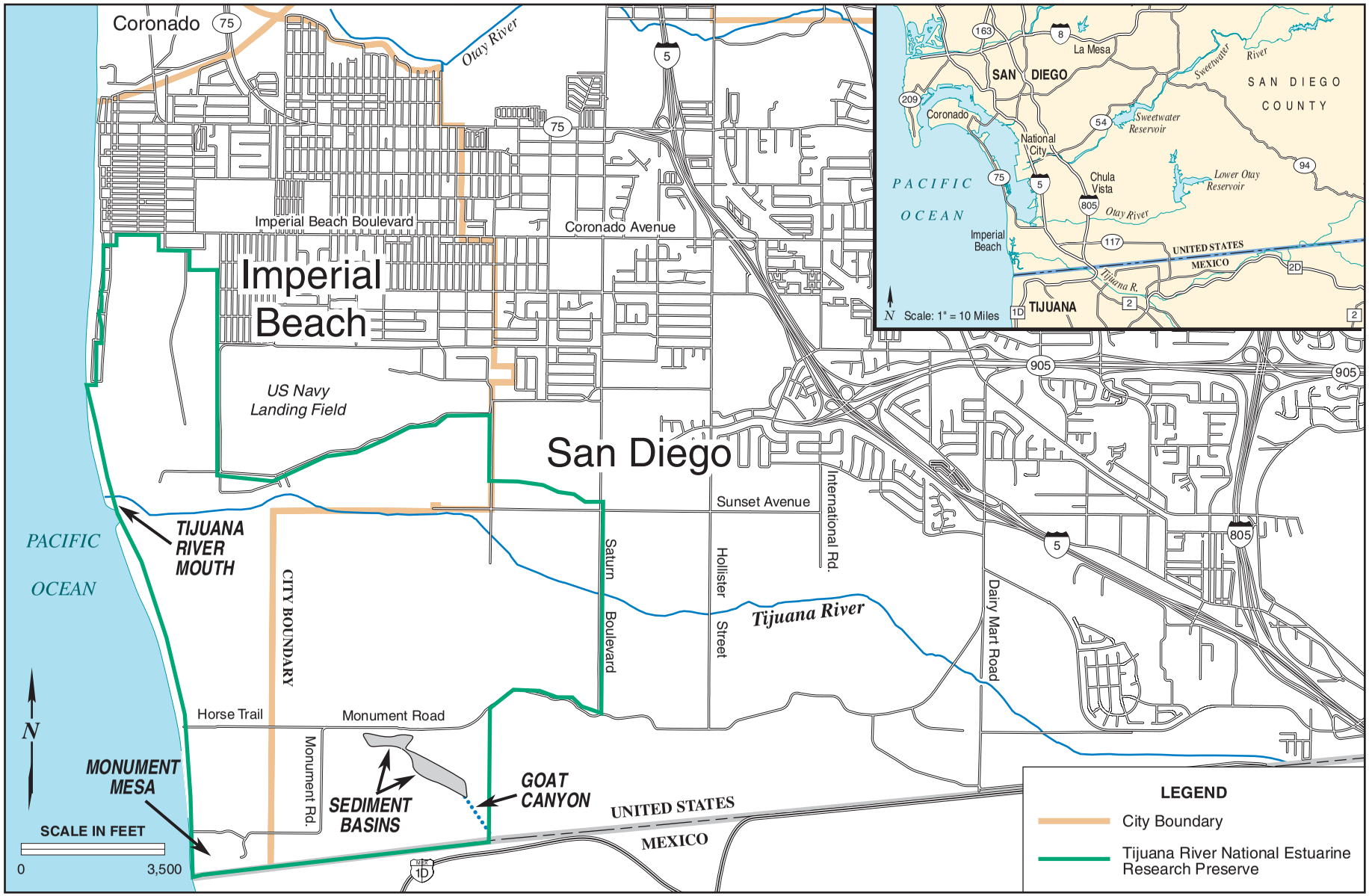
The proposed project is located within the southern portion of the Tijuana Estuary and beach within both the City of Imperial Beach and the City of San Diego, immediately north of the U.S.-Mexico border and approximately 18 miles south of downtown San Diego (Figure 2-1). Project activities would occur within BFSP, and south of the Tijuana Slough National Wildlife Refuge (TSNWR), both of which are part of the TRNERR. Portions of the low tide deposition area may technically fall within jurisdiction of California State Lands Commission which has authority over lands seaward of the mean high tide line. BFSP straddles the jurisdictional boundary of the City of San Diego to the east, and the City of Imperial Beach to the west. BFSP is located at the southern-most point of California, directly north of the U.S.-Mexico border and is bordered by the Pacific Ocean to the west. The sediment basin and staging/sorting area are within the City of San Diego, and the beach deposition area is within the City of Imperial Beach. The jurisdictional boundary between the two cities is west of the north-south portion of Monument Road (Figure 2-2). The sediment basin is located at the mouth of Goat Canyon, located in the southeastern portion of BFSP, near the boundary of Tijuana River Valley Regional Park, which is owned by the County of San Diego (Figure 2-2). Primary access to BFSP and the Goat Canyon sediment basin is via Dairy Mart Road off of Interstate 5, and then west along Monument Road. The northern end of the proposed sediment placement area is approximately 0.5 miles south of the Tijuana River mouth, and the southern end lies more than 0.5 miles north of the U.S.-Mexico border (Figure 2-3).

2.3 PURPOSE AND NEED

The proposed project is intended to provide scientific data regarding the transport and fate of fine-grained sediment within the Silver Strand littoral cell[2], provide an environmentally sound and economical approach toward future restoration activities within the TRNERR, and may also provide incidental beach nourishment benefits for Border Field State Beach, south of Imperial Beach. Delivery of sediment to the nearshore environment has been greatly altered from historical norms, due both to modification of upstream sources (e.g., damming) and impairment of the ability of estuaries to deliver sediment to the nearshore environment. The reduction in sediment export to the coastal environment is associated with urban development, loss of historic estuary acreage and decreased tidal prisms (i.e., the volume of water exchange between the ocean and the estuary associated with tidal action) (Zedler et al. 1992).

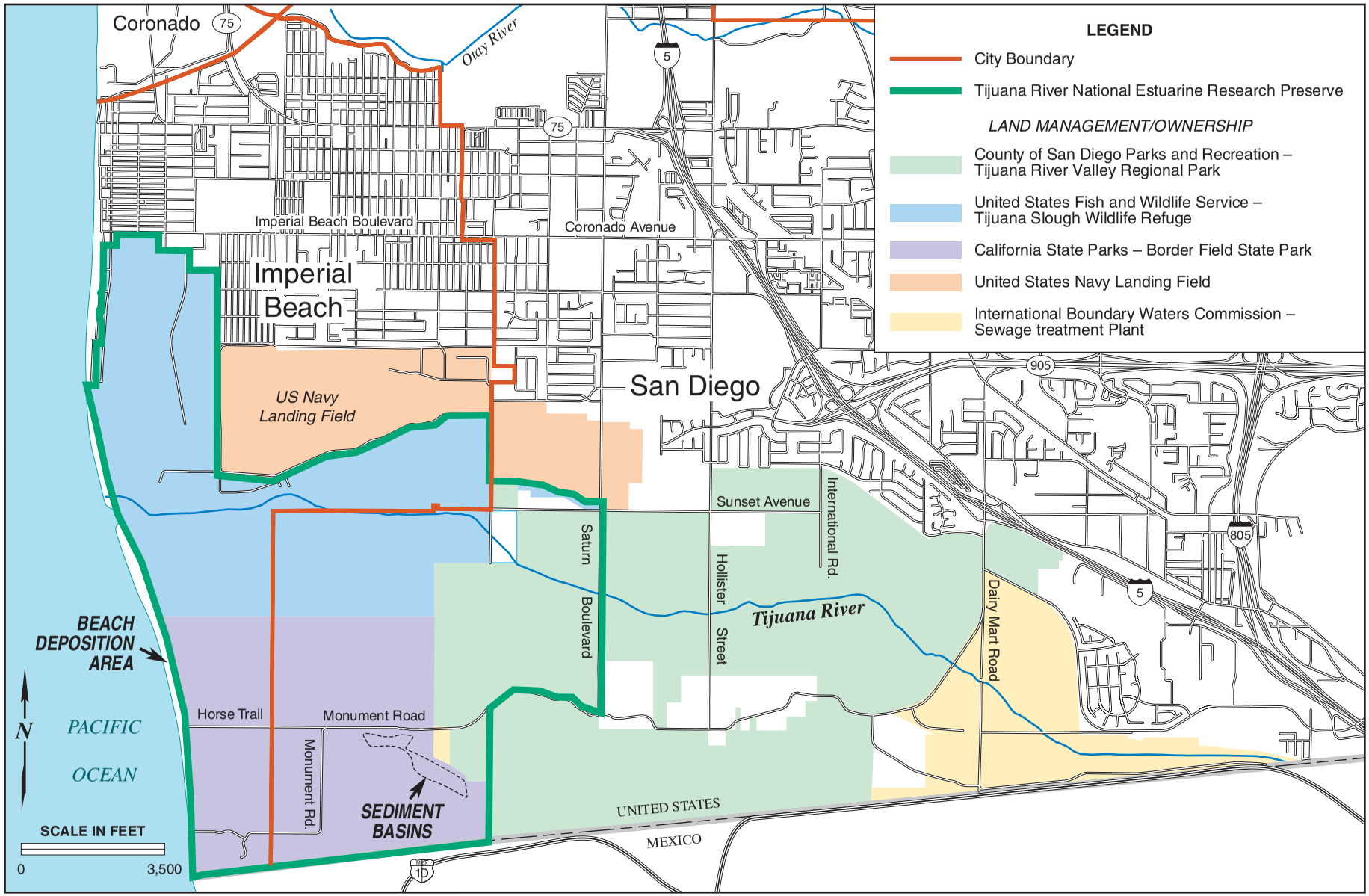
Fine-grained sediment enters California nearshore coastal waters both naturally (i.e., during flood events) and by human activities (i.e., beach nourishment). The Tijuana River to the north of the Science Study sediment placement area contributes approximately 90,000 cubic yards of sediment annually to the ocean environment (Farnsworth and Warrick 2008). Beach nourishment projects are typically limited to utilizing sediment with less than 20 percent fines (silt and clay), unless additional information demonstrates that such placement would not result

[2] The Silver Strand littoral cell refers to the segment of coastline that extends from the entrance of San Diego Bay southward past the U.S.-Mexico border.



Project Vicinity
Tijuana River Estuary

FIGURE 2-1



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Jurisdictional Boundaries – Management Responsibility
Tijuana River Estuary

FIGURE 2-2

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Greater Project Area
Tijuana River Estuary

FIGURE 2-3

in environmental degradation. However, much of the coastal sediment available for opportunistic beach nourishment does not meet the 80 to 20 percent (coarse to fine sediment ratio) USEPA guideline and is disposed of on land (e.g., landfills, construction fill) instead of being reused to replenish the sand supply of local beaches. The beaches in and near Imperial Beach have undergone severe erosion and are in need of restoration and an ongoing maintenance program to protect their function and habitat (TRNERR 2007). For the TRNERR and BFSP, ongoing disposal of sediment from the Goat Canyon sediment basins represents both a financial burden and a loss of sediment from the natural offshore system. Additionally, haulage to distant disposal sites contributes to traffic congestion, local air pollution and the carbon footprint of the protective activities.

The purpose of the Science Study is to reevaluate whether USEPA's 80 to 20 percent guideline is appropriately protective or overly conservative in the context of the TRNERR. CSMW is interested in determining whether sediment sources with a percentage of fines higher than 20 percent can be beneficially reused to address coastal erosion as part of regional sediment management. This study would provide the physical data needed to assess the extent and duration of both turbidity and sedimentation when sediment with greater than 20 percent fines is used for beach nourishment. The Science Study would be independently conducted by recognized coastal experts and the findings made available for use in other projects.

In addition to providing data that could help reevaluate existing guidelines, the project could potentially have incidental beach nourishment benefits, incrementally supplementing the beach and dune barrier system between the TRNERR and the ocean. Current models predict that these barrier dunes could be breached by the year 2045 if a proposed large-scale wetland dune restoration plan is not undertaken resulting in eventual loss of a tidally functional estuary (Tierra Environmental Services, Inc. 2007).

2.3.1 Project Goals and Objectives

A basic research goal of the National Estuarine Research Reserve Program is to heighten the understanding of coastal processes and facilitate actions needed to protect and restore coastal environments. The proposed project's basic goals and objectives are intended to be consistent with this goal and would include the following:

- Conduct a pilot project to determine the fate and transport of sediment deposited in the nearshore and the corresponding effects (if any) on the habitats and species;
- Facilitate review of current policy and practice by federal and state agency decision makers based upon the results of the pilot project;
- Enable coastal managers to better plan and provide a more economical approach for the restoration and maintenance of natural resources (e.g., coastal estuaries, lagoons, and river mouths), as well as the operation and maintenance of facilities (e.g., marinas, harbors, and ports);
- Provide local managers with an assessment of whether reuse of materials dredged during wetland restoration can be beneficially reused for beach nourishment;
- Permit the managers of the TRNERR and BFSP to determine if an ongoing program of beach nourishment using sorted sediment from Goat Canyon is an appropriate and environmentally-sound method of beneficial reuse and regional sediment management; and

- Provide incidental beach nourishment which may slow the retreat of the barrier beach and dune system that separates the TRNERR from the ocean.

Through a scientific approach to design and monitoring, the proposed project would equip decision makers with scientific information necessary to evaluate and possibly revise the policy and practice regarding the composition of material appropriate for beneficial reuse along the coast. The outcome of this review would give the CSMW and regional entities developing Coastal Regional Sediment Management Plans on behalf of CSMW (e.g., San Diego Association of Governments [SANDAG]), more certainty about long-term sediment budgets and viability of potential source materials.

In addition to the Science Plan, a study of the possible effects on biological resources in the proposed project area may be conducted to determine the effect of this project on select marine species. Although the scope of this study has not been established and no funding has been obtained, it *could* include examination of seabird and shorebird foraging, the benthic invertebrate macrofauna community of the intertidal zone, the nearshore sand dollar (*Dendraster excentricus*), and nearshore aquatic flora. Existing conditions, construction period conditions, as well as impacts during and post-construction would be assessed. Post-construction monitoring would likely be undertaken for at least one year following implementation of the proposed project, with the potential for extension if data suggest additional study is warranted. Because this study is unformulated and speculative at this time, based on the guidance provided in Section 15145 of the CEQA guidelines, this document does not address the impacts or include further discussion of this potential biological resource study.

2.4 PROJECT BACKGROUND

This study is designed to examine what happens when material from estuarine wetlands is placed in the nearshore zone. For this project, materials trapped in recently-constructed sediment basins will be used. Until recently, these sediments have entered the wetlands of the Tijuana Estuary. The existing Goat Canyon sediment basins were constructed under a permit from the USACE and completed in the spring of 2005. These basins were intended to intercept high volumes of sediment generated south of the international border in Tijuana, Mexico. During past high flow events, floodwaters and this sediment have damaged roads and facilities within BFSP and caused environmentally sensitive marsh areas to begin transitioning to upland habitats. This sediment was generated by uncontrolled development and vegetation clearing on erosive soils present upstream in the Goat Canyon Creek watershed. This sediment is now intercepted by two sediment basins, concrete overflow structure-check dams and debris racks. These facilities, together with surrounding dirt access roads, and an adjacent equipment staging and sediment sorting area occupy a total area of approximately 27 acres within and adjacent to the floodplain of Goat Canyon Creek, along the immediate southern margin of the Tijuana Estuary. Annual maintenance of the sediment basins involves removal of approximately 40,000 cubic yards of sediment to maintain system capacity. CDPR has a Clean Water Act Section 404 individual permit from USACE for annual sediment basin maintenance activities, which are ongoing permitted activities. Much of the required maintenance equipment, including an excavator, water truck, and sorter-sifter are

Existing sediment basins intercept runoff from Goat Canyon (background)

currently stored on-site for extended periods of time. Sediment removed during maintenance activities is disposed of at upland locations, protecting BFSP facilities and sensitive marsh habitats from damage, but depriving the local beaches of a natural source of sediment.

2.5 PROJECT DETAILS

The proposed project would include the transportation and deposition of approximately 60,000 cubic yards of sorted sediment from the Goat Canyon sediment basins along a 2,600[†] foot-long (0.5 mile-long) segment of beach located approximately 3,000 feet (0.57 miles) north of the international border and approximately 2,600 feet (0.5 miles) south of the Tijuana River mouth (Figure 2-3). Sediment is projected to contain a grain size distribution of approximately 60 percent sand and 40 percent fines based on initial sediment analysis (AMEC 2007a). Sediment transportation and deposition would occur in three separate phases, which are proposed to require approximately three to four consecutive months (October 2008 through February 2009). Phases 1 and 2 would each transport and deposit approximately 10,000 cubic yards of sediment; Phase 3 would transport and deposit approximately 40,000 cubic yards of sediment. The lower volumes of sediment proposed for Phases 1 and 2 would allow for establishment and verification of coastal processes and pathways prior to the larger volume of sediment placement proposed for Phase 3. Trash (e.g., plastics) and other unwanted materials (e.g., cobbles) would be removed from the sediment at the staging/sorting area. Once the sediment has been fully prepared for beach deposition, it would be loaded into trucks or scrapers and transported directly from the staging area to the beach deposition area. The project would also include testing of sediments both for grain size and to ensure, through screening, that sediments do not contain contaminants such as fecal coliform bacteria, heavy metals, petroleum distillates, or other hazardous substances and debris. The proposed project would utilize sediment that is already excavated from the Goat Canyon sediment basins and sorted at the existing staging/sorting area under existing permits. Although these ongoing operations are not technically part of the proposed project, they are discussed below to facilitate understanding of all aspects of these operations.

2.5.1 Goat Canyon Sediment Basin Excavation

As currently allowed under an existing permit, sediment would continue to be excavated from the Goat Canyon sediment basin using one or more excavators to load the sediment onto trucks for transportation to the staging/sorting area to the north of the sediment basin. The loaders and trucks use the existing dirt road system to access and transport the sediment. The timing and amount of excavation, which has been occurring on an annual basis since 2005, is related to rainfall activity and is based on how rapidly the sediment basins are filled. Timing is also constrained by avian breeding season.

[†] All of the distances henceforth are approximate. Refer to Figure 2-3.

2.5.2 Sediment Staging and Sorting

Once transported to the staging area, the sediment would be prepared for transportation to the beach through a sorting and aerating process. Sifters would be used to filter trash, stones, and cobbles from the sediment. Any trash filtered from the sediment would be properly disposed at a nearby landfill; stones, cobbles or other materials may be reused for fill or other construction purposes. Once the trash, stones, and cobbles are removed, the sediment would be either temporarily stored in large piles or be spread in long mounds for aeration. The aeration process would be employed as determined necessary through soil testing and would be used to remove potential fecal coliform bacteria through aeration and ultra violet (UV) light radiation. This aeration process is anticipated to require from 1 to 3 months and is dependent on weather. Although the initial science plan prepared for this project allotted five days for sediment staging during Phases 1 and 2 and 19 days for Phase 3, the duration of sediment staging may be extended by the need for aeration and could be affected by other variables such as high rainfall. Once the aeration process is complete, the sediment would be ready for transportation and deposition on the beach. Sediment testing for contamination would occur from material stored at the staging/sorting area or at other appropriate locations prior to its transport to the beach.

Equipment is stored at the staging area

2.5.3 Sediment Transportation from Staging Area to Deposition Site

There are two identified routes to transport sediment from the staging/sorting area to the deposition area, and both are considered in the IS. It is also feasible that the route will encompass both, making a round-trip loop. Route 1: The transport trucks and/or scrapers would travel west along Monument Road for approximately 0.25 miles, then follow Monument Road south for 0.5 miles before heading west again for another 0.5 miles. The west end of Monument Road provides a dirt-sand access route across low dunes to the beach, which is currently reinforced in places with steel grating. The trucks/scrapers would drive north along the beach for 2,300 feet (slightly less than 0.5 miles) to the southern end of the deposition zone. They would then deposit sediment along the 2,600 foot (0.5 mile) segment of beach designated for sediment deposition. The northern end of the sediment deposition zone ends 2,600 feet (0.5 miles) south of the Tijuana River mouth. The total distance traveled along Route 1 is 2.25 miles—1 mile of which is along the beach. Route 1 is paved along Monument Road, but is subject to flooding during wet weather. Route 1 is the preferred route for sediment transportation.

Route 2: The transport vehicles would travel directly west along Monument Road for approximately 0.25 miles then continue west on the horse trail road for 0.5 miles to the beach. The horse trail leads directly to the beach across high marsh habitat and a wooden bridge. Temporary support structures (e.g., steel plates) would need to be placed over the wooden bridge to support the weight of the transport vehicles, as well as across the dune line in this area. Also, the bridge railings may have to be temporarily removed during construction to widen the access-way sufficiently for scrapers (which are 15 feet wide), and reinstalled after construction is complete. The trucks/scrapers would then travel 300 feet (0.05 miles) south and 2,300 feet (slightly less than 0.5 miles) north on the intertidal area of the beach to deposit sand

along the 2,600 foot (0.5 mile) deposition area. While Route 2 is the shorter of the two routes (1.25 miles versus 2.25 miles for Route 1), it may be used less because the horse trail is a dirt road through marsh habitat and because of the old age of the narrow wooden bridge at the end of the horse trail (although the bridge could be completely spanned with steel plates and protected during construction). Trucks and/or scrapers may damage the dirt road during inclement weather, and because of the unknown durability of the wooden bridge, it is assumed to be unable to support the weight of trucks/scrapers.

The final option for a transport route might be a hybrid of Routes 1 and 2, with Route 1 servicing as the ingress to the placement site, and Route 2 serving as the egress from the beach site to create a circulation "loop" for deliveries, thereby decreasing congestion and time between trips.

The proposed project is anticipated to require a maximum of 10 days for sediment deposition during Phases 1 and 2 and maximum of 60 days for Phase 3. Assuming that each truck would haul 10 cubic yards of sediment per trip and that each trip would take between 30 minutes to one hour, it is anticipated that between 7 and 25 trucks would be required for Phases 1 and 2 and between 5 and 17 trucks would be required for Phase 3. Tables 2-1 and 2-2 show the variables (e.g., duration of work day, duration per trip) that affect the number of trucks required and truck trips per day required in order to deposit the sediment volumes in each phase. Timing may also be significantly affected by tides, inclement weather, etc. It is possible that if tides are not favorable to deposition on the beach foreshore, half working days may be required.

Table 2-1. Estimated Haul Truck Trips – Phases 1 and 2

Maximum Duration	Haul Amount	Haul Amount/ Truck	Daily Haul Amount	Haul Hours /Day	Trip Duration	Trips/Day/ Truck	Trucks Required*	Total Truck Trips/Day*
10 days	10,000 cubic yards	10 cubic yards	1,000 cubic yards	4	30 minutes	8	13	104
					1 hour	4	25	100
				6	30 minutes	12	9	108
					1 hour	6	17	102
				8	30 minutes	16	7	112
					1 hour	8	13	104

Table 2-2. Estimated Haul Truck Trips – Phase 3

Maximum Duration	Haul Amount	Haul Amount/ Truck	Daily Haul Amount	Haul Hours / Day	Trip Duration	Trips/Day/ Truck	Trucks Required*	Total Truck Trips/Day*
60 days	40,000 cubic yards	10 cubic yards	667 cubic yards	4	30 minutes	8	9	72
					1 hour	4	17	68
				6	30 minutes	12	6	72
					1 hour	6	12	72
				8	30 minutes	16	5	80
					1 hour	8	9	72

*Blue font indicates values calculated based on the disclosed variables (black font). Calculations were rounded to the nearest whole number.

It is anticipated that trucks would need to drive on the hard packed sand of the intertidal beach closer to the water as opposed to the softer sand on the higher beach. As numerous trucks would be necessary for this project, two lanes of travel along the beach may be necessary. Rising tides would limit the available time for truck trips during the day and could limit work to half-days in some instances if tidal conditions are not optimal.

Alternatively, scrapers could also perform the work and may require fewer pieces of equipment due to their larger carrying capacity. One possible scenario consists of scrapers each with a capacity of 20 cubic yards, cycling over the entire working day as was recently done at Seal Beach in Orange County (Moffatt & Nichol 2007). Because the scrapers have a capacity twice as large as that of trucks, less equipment and a fewer number of trips per day is required to deposit the same volume of sediment (Tables 2-3 and 2-4). Scrapers also provide the benefit of being able to drive through wet conditions, such as during high tides.

Table 2-3. Estimated Scraper Trips – Phases 1 and 2

Maximum Duration	Haul Amount	Haul Amount/ Scraper	Daily Haul Amount	Haul Hours /Day	Trip Duration	Trips/Day/ Scraper	Scraper Required*	Total Scraper Trips/Day*
10 days	10,000 cubic yards	20 cubic yards	1,000 cubic yards	4	30 minutes	8	7	56
					1 hour	4	13	52
				6	30 minutes	12	5	60
					1 hour	6	9	54
				8	30 minutes	16	4	64
					1 hour	8	7	56

Table 2-4. Estimated Scraper Trips – Phase 3

Maximum Duration	Haul Amount	Haul Amount/ Scraper	Daily Haul Amount	Haul Hours /Day	Trip Duration	Trips/Day/ Scraper	Scrapers Required*	Total Scraper Trips/Day*
60 days	40,000 cubic yards	20 cubic yards	667 cubic yards	4	30 minutes	8	5	40
					1 hour	4	9	36
				6	30 minutes	12	3	36
					1 hour	6	6	36
				8	30 minutes	16	3	48
					1 hour	8	5	40

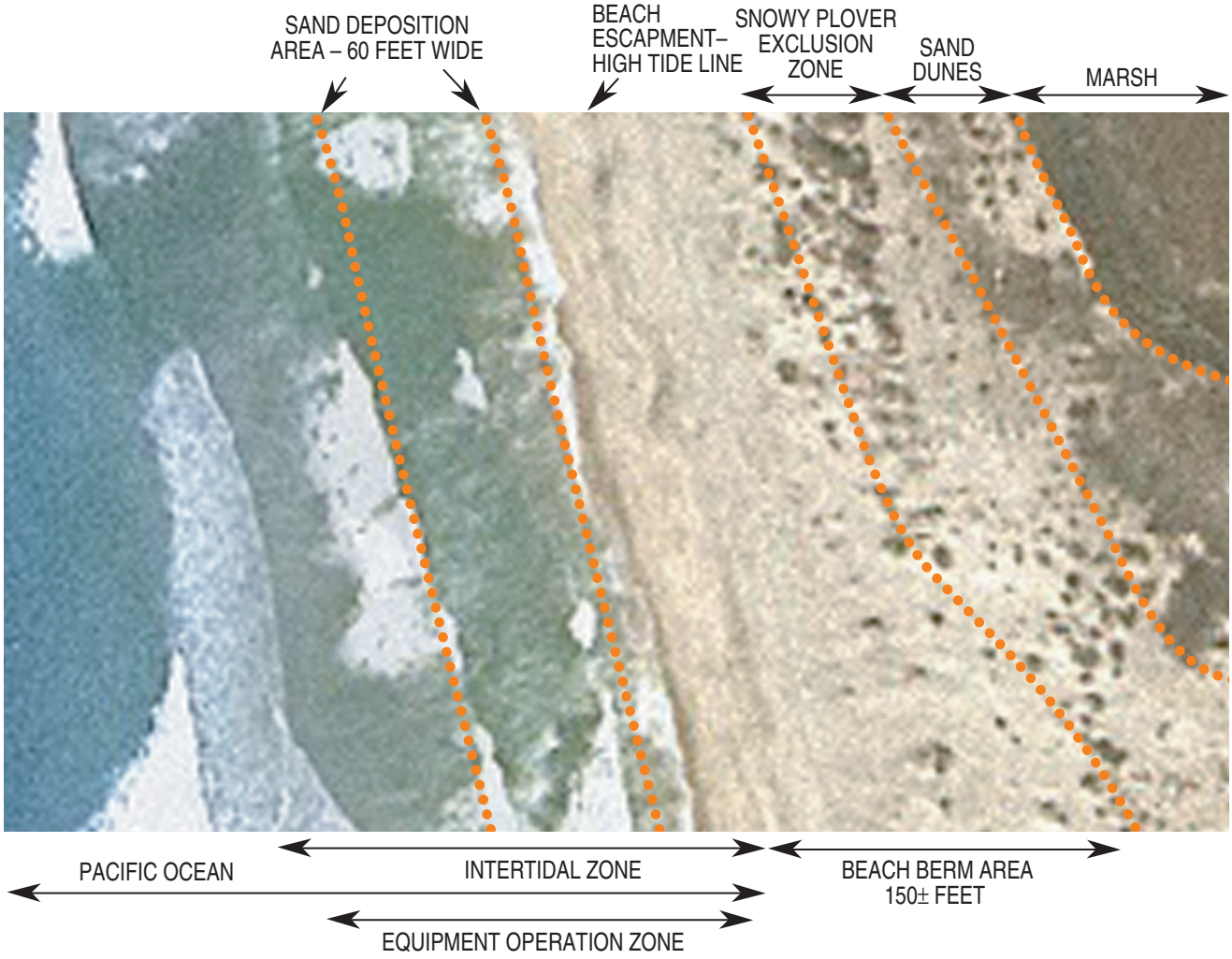
*Blue font indicates values calculated based on the disclosed variables (black font). Calculations were rounded to the nearest whole number.

Sediment would be placed on the seaward side of the beach

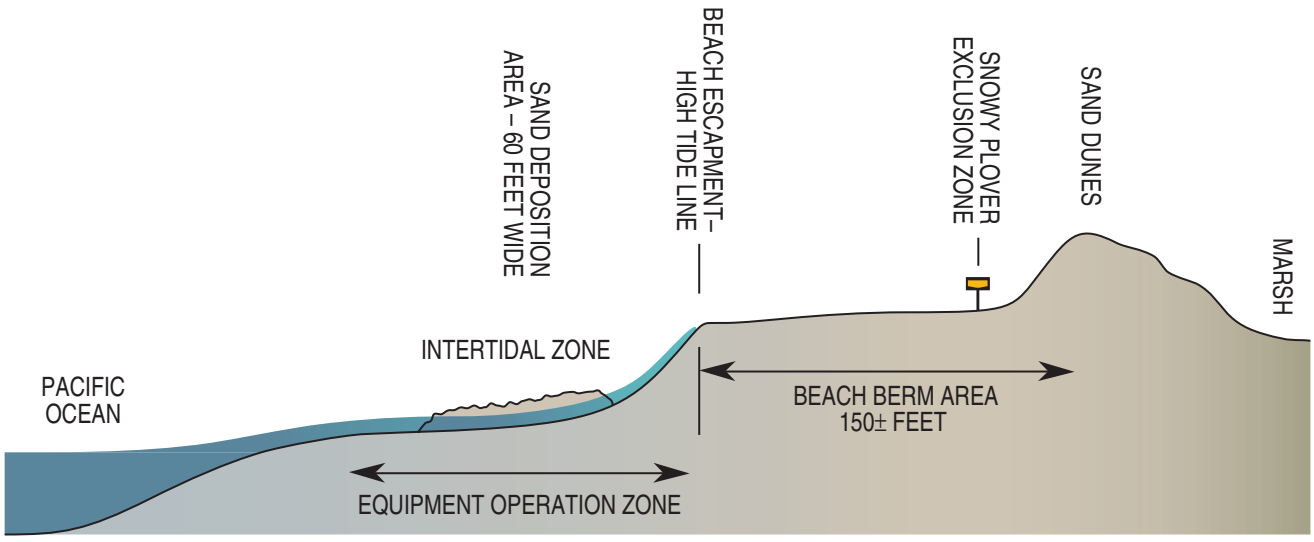
Regardless of the transport mode applied, at least one bulldozer would be required at the stockpile site to maintain equipment access, and two bulldozers would be needed at the beach site to groom the placement area with one front-end loader to pick delivered sand up and move it lower toward the low tide line. If trucks are used, then at least one front end loader would be required at the stockpile site to load the truck trailers. The advantage of scrapers over trucks is that they can push and pull each other using attachments on their vehicles to assist if they get bogged down in the soft surface of the transport route. Trucks may require more frequent assistance as needed. Additionally, if Route 1 is used then the Monument Road will likely have to be resurfaced and repaired from the damage incurred during the hauling operations. Using Route 2 would eliminate this need.

2.5.4 Sediment Deposition on Beach Area North of the International Border

The sediment is proposed to be deposited below the beach berm, below the high watermark, generally below the beach escarpment that marks the maximum height reached by a rising tide (Figure 2-4). Haul trucks are anticipated to “rear dump” to deposit sediment. The sediment would then be bulldozed into a mound on the exposed lower beach, and carried by front-end load toward the water during times of extreme low tide if needed. Alternatively, if scrapers are utilized, they would “belly dump” sand as close to the waterline as possible as they travel north along the seaward sloping beach-face and turn toward the higher, drier beach to turn around and return to the sediment source. As previously mentioned, there would be three phases from October 2008 through February 2009, coinciding with appropriate tidal cycles (e.g., low tides to allow for transport) called “spring tides” that are predicted to occur in during this time. Multiple phases of sediment deposition would allow for the evaluation of how environmental conditions (waves, currents, and placement volume) affect sediment pathways and fate. Uniform and rapid movement of the sediment into the surf zone, which is necessary for accurate tracking of sediment, would require at least two bulldozers during Phases 1 and 2 and possibly more during Phase 3. The sediment would be placed in a low-lying linear mound, positioned below the mean high tide line stretching along the beach with a height of approximately one to two yards. Using historical topographic information from the beach, it appears that the linear mound could be up to 20 yards wide. Placement below the mean high tide line along the beach allows the waves to reach it and immediately start working on distributing the sediment along the nearshore profile with the rising tide. The following day, the mound would be reduced from the wave action and additional sediment can be added to the same area and/or further along the beach. The reduction depends on wave climate and tidal cycle and is difficult to estimate, but could be up to half of the volume in 12-hour period, or more. If wave energy conditions are sufficiently high, the entire mound volume could be removed overnight between working days. This overlapping of work area each day reduces the beach length needed to construct each phase of the project. The maximum working beach area length is approximately 2,600 feet, which allows for sufficient area to construct a deposition mound over a series of days, while protecting the nearby sensitive biological beach habitats. The two or more bulldozers and one loader required to form the mound would generally be prohibited from operating on the approximately 150-foot-wide beach berm except at roadway entry points to protect wildlife resources (except at designated beach crossing points), which would limit operations during high tide or high wave conditions.



Note: Beach width is variable; aerial photograph is for illustrative purposes only.



Schematic of Proposed Beach Work Zone
Tijuana River Estuary

FIGURE 2-4

2.6 EXISTING SETTING

Snowy plover nests and over-wintering populations both occur on project area

The project site is located within the Tijuana Estuary and project activities would affect lands within and adjacent to the estuary as well as along the beaches fronting the estuary. The estuary is comprised of a mosaic of high marsh, low marsh, and tidal channel habitats and is subject to regular tidal inundation and periodic flooding. The existing sediment basins are located within the flood plain of Goat Canyon which supports riparian and wash habitats and borders upland habitat areas. The estuary, adjacent upland habitats, and beach are known to support special status (i.e., sensitive, threatened or endangered) species such as the California gnatcatcher, least Bell's vireo, Belding's savannah sparrow, light-footed clapper rail, and a number of sensitive plant species. The beaches fronting the estuary are known to support both nesting and over-wintering populations of the western snowy plover, as well as the California least tern. Additional sensitive species on the beach may include the globose dune, sandy beach tiger and tiger beetles. These resources are discussed in more detail in the biological resources section.

The TRNERR is comprised of a mosaic of federal, state, local, and privately owned lands under a single management framework. The major federal landowners are the USFWS, and the U.S. Navy (USN). USFWS owns a 505-acre parcel, and the USN controls an additional 551 acres, part of the Imperial Beach Naval Outlying Landing Field. Under a 1984 Memorandum of Understanding, the USFWS manages the 551 acres of USN property for wildlife refuge purposes. USFWS lands, USN lands, and tidelands leased from the California State Lands Commission are all part of TSNWR that comprises the northern portion of the Reserve (CDPR et al. 2007).

The State of California owns an 814-acre parcel (BFSP) at the southern end of the Reserve. The park is operated by CDPR. Both the County and the City of San Diego also own land within the Reserve. All lands within the Reserve boundary are held in public ownership for resource conservation, with the exception of approximately 14 acres remaining in private ownership (Figure 2-2) (CDPR et al. 2007).

Horse trail road is narrow and unpaved

Access to the Goat Canyon sediment basin system is via Dairy Mart Road off of Highway 5. Dairy Mart Road becomes Monument Road before BFSP. Monument Road is accessible from the staging area adjacent to the sediment basin. Monument Road is a paved, two-lane road from the staging area to the beach. There is wetland and marsh habitat on either side of the road, portions of which have been subject to past disturbances from flooding and other events. The southern most portion of Monument Road, near the beach, tends to flood during wet weather due to flows from Yogurt Canyon and wave over-wash.

The horse trail road is also accessible via Monument Road from the staging area adjacent to the sediment basin. The horse trail road is a one-lane, silty-clay or sandy-dirt road from

Monument Road to the beach. Portions of this road have been reinforced with a light layer of gravel. There is high marsh habitat on either side of the horse trail and an aging wooden bridge that crosses a small tidal channel directly adjacent to the beach.

Along the beach area between the Monument Road beach access and the horse trail road adjacent to the deposition area, exists known nesting and over-wintering habitat for the western snowy plover (*Caradrius alexandrinus nivosus*) and nesting habitat for the California least tern (*Sternulae antillarum*) nesting habitat. Breeding season for the western snowy plover is May 1 through June 30 and for the California least tern is April 1 through September 30. A sizeable population of snowy plovers, estimated at 80 to 100 birds in 2006, is known to over-winter in the area 200 yards south of the river mouth (approximately 1 mile north of the deposition area). The snowy plover dune nesting area is fenced, and numerous signs are posted to keep park visitors and beach-goers out of the area. The beach between the Monument Road beach access and the deposition area is approximately 150 to 350 feet wide depending on the tide and the limits of the western snowy plover and California least tern exclusion zone.

Border Field State Beach fronting the TRNERR currently receives light to moderate levels of recreational uses. Typical uses include beach walking or running, surfing, surf fishing, sun bathing, bird watching, and educational activities, such as school field trips. The level of recreational activity on beaches in the project area is somewhat limited due to the distance to public access points to the north in Imperial Beach, the need to cross the slough mouth, and the ongoing closure of Monument Road due to flooding.

2.7 PROJECT CONSTRUCTION DETAILS

2.7.1 Schedule

The targeted proposed project schedule is illustrated in Table 2-4 below.

Table 2-4. Project Schedule

Activity	Date
Draft Initial Study/Mitigated Negative Declaration	December 2007
Final Initial Study/Mitigated Negative Declaration	January 2008
Sediment Mapping	May 2008 to May 2009
Begin Construction	October 2008
End Construction	February 2009

The project would commence no earlier than October 1, 2008 and finish no later than February 15, 2009. A daily construction schedule, including specific work times and length of work day, has not yet been determined. The above schedule is conceptual and would be dependent on many factors, including ocean tides and the presence and sensitivity of adjacent bird populations.

2.7.2 Construction Vehicles

Construction vehicles are anticipated to include: 1 to 2 excavators, 1 to 2 sifters, 1 to 4 front-end loaders, 2 to 8 bulldozers, and possibly 5 to 25 haul trucks or 3 to 13 scrapers. Construction vehicles would remain on-site, traveling between the sediment basin, staging/sorting area, and the beach for the duration of construction. Construction vehicles

would be maintained in good condition and equipped with both noise muffling devices and standard emission control devices.

2.8 VISITATION TO TRNERR

A survey was performed during the preparation of the TRNERR's 1999 Comprehensive Management Plan that estimated the use of activity within the Reserve (CDPR 2002), as shown in Table 2-5.

Table 2-5. Number of Visitors to the TRNERR

Activity	Year		
	1995	1996	1997
Environmental Education	3,000	3,500	4,500
Interpretive Programs	1,650	2,800	3,500
Special Events	925	940	940
Wildlife Observation	5,000	8,000	9,500
Foot Trails	18,000	18,900	21,000
Equestrian Trails	12,000	13,000	13,000
Beach Use	28,000	29,000	30,500
Surfing	800	800	800
Photography	200	250	300
Research	500	800	850
Total # of Visitors	**70,075**	**78,070**	**84,890**

Except for activities at the Tijuana Estuary Visitor Center, neither BFSP nor the TRNERR has any reliable attendance information. Visitor counts that do exist indicated an increase in park attendance via Monument Road since the opening of the Visitor Center in 1991, despite the lack of access to the park for up to 5 months yearly due to road closures from flooding. Additionally, unrecorded visitation occurs from pedestrian and equestrian users coming in from numerous uncontrolled formal and informal trails leading into and throughout the Park and Reserve. Visitor Center use figures are more reliable although they too do not account for visitors entering the park's trails or native plant garden at the Visitor Center entrance. Much of the increase in attendance can be attributed to the increased popularity of the Visitor Center, and to the use of its interpretive/educational displays by school groups and junior ranger after-school programs. The most recent count shows at least 125 school groups visited the facility in 2000.

2.9 PROJECT PERMITTING

Table 2-6 provides a list of permits known and potentially required for the proposed project.

Table 2-6. Known and Potentially Required Permits and Approvals by Agency

Agency	Required Permits and Approvals
U.S. Army Corps of Engineers	Clean Water Act Sections 10 and 404 Permit
U.S. Fish and Wildlife Service	Endangered Species Act Section 7 Consultation
California Coastal Commission	Coastal Development Permit
California Department of Fish and Game[1]	California Endangered Species Act Permit
California Office of Historic Preservation	National Historic Preservation Act Sec. 106 Review
California State Lands Commission	Lease of State Lands
SD Regional Water Quality Control Board	401 Certification; NPDES Permit
City of San Diego	Grading Permit
City of Imperial Beach	Coastal Development Permit

[1] Endangered Species Act permit is unlikely, but further informal consultation with CDFG will occur.

2.10 DISCRETIONARY APPROVALS

CDPR has the approval authority for the proposed Science Study at the TRNERR and on the beach at the mouth of the Tijuana River. Prior to the start of construction, the proposed project may require consultation with or permits from the SCC, CDFG, USFWS, RWQCB, and the USACE. The City of San Diego may be considered a Responsible Agency under CEQA, and may, therefore participate in the environmental review process for this project in accordance with Section 15096 of CEQA Guidelines.

2.11 RELATED PROJECTS

The following is a list of projects pertaining to the proposed project area and its vicinity (Tijuana River Valley Regional Park Trails and Habitat Enhancement Project Draft EIR, August 2006).

- *U.S. Customs and Border Protection 14-Mile Border Infrastructure System Project* - This project involves the development of a new triple fence system along the U.S.-Mexico International Border to control illegal border crossings. This project has been exempted by federal authorities from environmental review and permitting.
- *Goat Canyon Enhancement Project* – This project would provide enhancements and sediment controls for the Goat Canyon area of Border Field State Park. Environmental review and project construction has been completed.
- *California Coastal Trail Planning* – The California Coastal Conservancy is developing the California Coastal Trail (CCT), which is a network of publicly accessible trails for pedestrians, bicyclists, equestrians, wheelchair users, and other users along the entire California coastline. When completed, the trail will stretch along the coast of California from the Oregon Border to the U.S.-Mexico border. The CCT is in the process of development.
- *Border Field State Park/Tijuana Estuary Visitor Center* – This project involves the development and rehabilitation of day-use facilities at both the Border Field State Park and the Tijuana Estuary Visitor Center. A Notice of Determination (NOD) was filed in October 2002. Work has been completed at the Tijuana Estuary Visitor Center, but is still undergoing implementation at Border Field State Park.

- *San Diego County Water Authority Wetlands Mitigation Site* – The project would provide a 40-acre riparian woodland/riparian scrub mitigation bank within TRVRP. A Request for Proposal was issued in July 2005 and, as of November 2005; the County Water Authority was in the process of selecting an environmental consultant to identify the mitigation area and to prepare an environmental document.
- *Tijuana River Valley Regional Park Trails and Habitat Enhancement Project* – This project would provide habitat restoration and public access improvements within the park, located immediately east of the TRNERR.
- *Tijuana Estuary-Friendship March Tidal Restoration, Feasibility and Design Program* – This project would provide approximately 250 acres of wetland restoration within the park, including areas north and south of the horse trail road.

CHAPTER 3
ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION

1.	Project Title:	Tijuana Estuary Sediment Transport Study
2.	Lead Agency Name & Address:	California Department of Parks and Recreation
3.	Contact Person & Phone Number:	Christopher M. Peregrin, (619) 575-3613 ext. 332
4.	Project Location:	Tijuana River National Estuarine Research Reserve
5.	Project Sponsor Name & Address:	California Department of Parks and Recreation Tijuana River National Estuarine Research Reserve Border Field State Beach, Border Field State Park 301 Caspian Way Imperial Beach, CA 91932
6.	General Plan Designation:	State Park/Wildlife Refuge/Estuarine Research Reserve
7.	Zoning:	ESZ/WCZ/WOZ/GRZ and EBZ

8. Description of Project:

Sediment obtained from the Goat Canyon sediment basins would be deposited onto the beach south of the Tijuana River mouth as part of a Sediment Fate and Transport Study (Science Study). The Science Study would determine the fate and transport of sediments in the nearshore environment. Incidentally, the beach and dune barrier between the Tijuana Slough and the Pacific Ocean would be supplemented with these sediments. Approximately 60,000 cubic yards (cy) of sediment would be transported and deposited in three phases over the course of three to four months (October 2008 to February 2009). Phases 1 and 2 would deposit 10,000 cy each, and Phase 3 would deposit 40,000 cy. The fate and transport of the sediment would be monitored by the U.S. Geological Survey. Refer to Chapter 2 for further details.

9.	Surrounding Land Uses & Setting:	Refer to Chapter 3 of this document (Section IX, *Land Use Planning*)
10.	Approval Required from Other Public Agencies:	Refer to Chapter 2 (Section 2.9, *Discretionary Approvals*)

1. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "less than significant with mitigation", as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Hazards & Hazardous Materials	☒ Hydrology/Water Quality	☒ Land Use/Planning
☐ Mineral Resources	☒ Noise	☐ Population/Housing
☒ Public Services	☒ Recreation	☒ Transportation/Traffic
☐ Utilities/Service Systems	☒ Mandatory Findings of Significance	☐ None

DETERMINATION

On the basis of this initial evaluation:

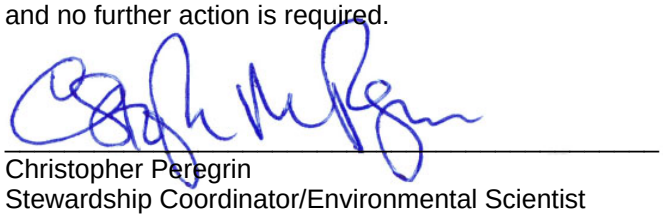
I find that the proposed project **COULD NOT** have a significant effect on the environment and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that, although the original scope of the proposed project **COULD** have had a significant effect on the environment, there **WILL NOT** be a significant effect because revisions/mitigations to the project have been made by or agreed to by the applicant. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒

I find that the proposed project **MAY** have a significant effect on the environment and an **ENVIRONMENTAL IMPACT REPORT** or its functional equivalent will be prepared. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment. However, at least one impact has been adequately analyzed in an earlier document, pursuant to applicable legal standards, and has been addressed by mitigation measures based on the earlier analysis, as described in the report's attachments. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the impacts not sufficiently addressed in previous documents. ☐

I find that, although the proposed project could have had a significant effect on the environment, because all potentially significant effects have been adequately analyzed in an earlier EIR or Negative Declaration, pursuant to applicable standards, and have been avoided or mitigated, pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, all impacts have been avoided or mitigated to a less-than-significant level and no further action is required. ☐



Christopher Peregrin
Stewardship Coordinator/Environmental Scientist

1/29/08
Date

EVALUATION OF ENVIRONMENTAL IMPACTS

1. Brief explanations are required for all answers (except "No Impact") and must be adequately supported by the information sources cited. A "No Impact" answer is adequately supported if the referenced information sources show that the impact does not apply to the project being evaluated (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on general or project-specific factors (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must consider the whole of the project-related effects, both direct and indirect, including off-site, cumulative, construction, and operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether that impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate when there is sufficient evidence that a substantial or potentially substantial adverse change may occur in any of the physical conditions within the area affected by the project that cannot be mitigated below a level of significance. If there are one or more "Potentially Significant Impact" entries, an Environmental Impact Report (EIR) is required.

4. A "Mitigated Negative Declaration" (Negative Declaration: Less Than Significant with Mitigation Incorporated) applies where the incorporation of mitigation measures, prior to declaration of project approval, has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact with Mitigation." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR (including a General Plan) or Negative Declaration [CCR, Guidelines for the Implementation of CEQA, § 15063(c)(3)(D)]. References to an earlier analysis should:

   a) Identify the earlier analysis and state where it is available for review.

   b) Indicate which effects from the environmental checklist were adequately analyzed in the earlier document, pursuant to applicable legal standards, and whether these effects were adequately addressed by mitigation measures included in that analysis.

   c) Describe the mitigation measures in this document that were incorporated or refined from the earlier document and indicate to what extent they address site-specific conditions for this project.

6. Lead agencies are encouraged to incorporate references to information sources for potential impacts into the checklist or appendix (e.g., general plans, zoning ordinances, biological assessments). Reference to a previously prepared or outside document should include an indication of the page or pages where the statement is substantiated.

7. A source list should be appended to this document. Sources used or individuals contacted should be listed in the source list and cited in the discussion.

8. Explanation(s) of each issue should identify:
   a) the criteria or threshold, if any, used to evaluate the significance of the impact addressed by each question **and**
   b) the mitigation measures, if any, prescribed to reduce the impact below the level of significance.

ENVIRONMENTAL ANALYSIS

The Environmental Analysis (Initial Study) Checklist was prepared to evaluate the proposed project's impact on the surrounding environment. The environmental setting for each topic describes the conditions currently existing at the project site. Potential environmental impacts, identified by checklist point, are addressed in the discussion section. For each impact identified as "less than significant with mitigation," mitigation measures to reduce the impact to a less than significant level have been specified. This document incorporates by reference the background data and information contained in IS/MND for the BFSP and Tijuana Estuary Visitor Center (CDPR 2002), and the EIR/EIS for the construction of the Goat Canyon Sediment Basins (Tierra Environmental Services Inc. 2001). Document reviewers that wish more detailed background information on resources areas, particularly those peripheral to key issues associated with this project (e.g., cultural resources, geology), should consult the aforementioned documents which are available for review at the Tijuana Estuary Visitor Center located at 301 Caspian Way, Imperial Beach, CA 91932.

I. AESTHETICS

ENVIRONMENTAL SETTING

The proposed project area includes portions of the TRNERR and BFSP, including over one mile of Border Field State Beach and is located in both the City of San Diego and the City of Imperial Beach. The TRNERR received over 84,000 visitors in 1997, approximately 40% of whom were beach-goers. The TRNERR and BFSP contain scenic wetland, riparian and sand dune habitats with a variety of wildlife species. The Tijuana River and Estuary are bounded to the north by developed area of the Imperial Beach Naval Outlying Field and the City of Imperial Beach, and to the south by scenic bluffs vegetated with coastal sage scrub and scattered stands of eucalyptus and tamarisk trees. Portions of the City of Tijuana, such as the bull ring, are visible along the tops and backdrop of these bluffs. Like most of the remaining wetlands in Southern California, these wetlands are located close to a large urban population. As such, the TRNERR and BFSP provide an important island of open space in this rapidly urbanizing area. Finally, the TRNERR supports the only coastal lagoon in Southern California not bisected by roads or railroads, enhancing the scenic importance of this relatively unique interface of wetland, dunes and beach.

The proposed project would be located along the southern and western margins of TRNERR and BFSP. The immediate project area is divided into three components: (1) the disturbed sediment sorting areas immediately adjacent to the Goat Canyon sediment basins which support large piles of sand and cobbles as well as several pieces of heavy machinery; (2) the proposed haul routes Monument Road and the horse trail road which traverse scenic wetland areas between the sediment basins and the beach; and (3) approximately, but no more than, one mile of Border Field State Beach, a scenic and relatively undisturbed section of coastline in an urbanized area. Weekday visitation to these areas is light as BFSP is only open to the public on weekends and even then, visitation is moderate.

WOULD THE PROJECT:	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

DISCUSSION

a) The proposed project would not involve any permanent construction or obstruct scenic vistas. Temporary closures to areas where project activities are occurring would be intermittent and alternate routes would be provided to the public through postings and notifications. Over the three to four months of project implementation, heavy equipment would operate along Monument Road and the horse trail road, as well as along approximately, but no more than, one mile of Border Field State Beach. During this period, large piles of sediment, orange construction fencing, various signs, and heavy equipment would be visible along the beach and from vantage points such as the BFSP Overlook and potentially from distant views from the City of Imperial Beach or trails within the TRNERR. After construction ceases, all equipment, fencing, and signs would be removed and the beach would revert to its natural condition. There would be no long-term or permanent impacts to the existing scenery. Due to the relative inaccessibility of the area, short-term impacts would affect relatively few viewers, and thus, the project will have a less than significant impact.

b) The proposed project is not within viewing distance from a state scenic highway. Although there would be short-term (three to four months of) disturbance to scenic Border Field State Beach, no permanent damage to scenic resources such as trees, rock outcroppings, and historic buildings would occur due to the proposed project; therefore, there would be no impacts to aesthetics from the proposed project.

c) The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. As with any project involving heavy equipment, there may be some temporary decreases in visual appeal of the area stemming directly from project activities. However, the duration of the proposed project is no more than three to four months, and activities would occur intermittently over this time period. The number of viewers affected would be relatively small as the south end of BFSP is closed to vehicles on weekdays and weekend visitation to the south end of the TRNERR is lower than that which occurs at the more developed facilities to the north (e.g., Visitor Center, adjacent trails and boardwalks). Further, the southern portion of Border Field State Beach is visited less than the more accessible beach areas north of the slough mouth and adjacent to Imperial Beach. Because of the short-term nature of this impact and the relatively limited number of viewers, the impact from the proposed project would be temporary and less than significant.

d) There is no lighting involved in the proposed project, other than those potentially used by construction equipment during heavy fog or low-light hours of the day. Project activities generally would not occur before or after daylight and no new lighting would be residual in the area post-project. Therefore, no impact due to light or glare exists for the proposed project area.

II. AGRICULTURAL RESOURCES

ENVIRONMENTAL SETTING

The project area is located within the California Coastal Zone. The current Tijuana River Valley Local Coastal Plan/Land Use Plan was adopted by the City of San Diego and certified by the California Coastal Commission in 1999. The majority of the proposed project area is designated for long-term natural open space and no agricultural activities occur at the sediment basins, along the access roads or on the beach. A total of 434 acres are designated for other community open space/agricultural use. The only other plan designations reflect existing military and utility uses. Zoning within the TRNERR Comprehensive Management Plan further delineates 5 resource use zones: (1) Endangered Species Protection/Preservation Zone (ESZ); (2) Wetland/Wildlife Conservation Zone (WCZ); (3) Wildlife Orientation/Interpretation Zone (WOZ); (4) General Recreation Zone (GRZ); and the Ecological Buffer Zone (EBZ).

WOULD THE PROJECT*:	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	☐	☐	☐	☒

* In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farm land.

DISCUSSION

a-c) As noted in the Environmental Setting above, the TRNERR, while near a rural agricultural area, is zoned ESZ, WCZ, WOZ, GRZ, and EBZ and does not contain any agricultural operations or farmland. None of the land within or surrounding the proposed project area is in agricultural use or production and is not included in any of the Important Farmland categories, as delineated by the California Department of Conservation, under the Farmland Mapping and Monitoring Program. No component or externality of the proposed project would have an effect on any category of California Farmland, conflict with any existing zoning for agricultural use or Williamson Act contract, nor would interfere with the use or result in the conversion of agricultural land to a non-agricultural use.

III. AIR QUALITY

ENVIRONMENTAL SETTING

The proposed project is located in the San Diego Air Basin (SDAB), which encompasses San Diego County. The climate of the county is characterized by warm, dry summers, and mild winters with some rainfall, and overall mild temperatures year-round (mean temperature is 62.2° Fahrenheit [°F], with a mean maximum of 75.7°F and a mean minimum of 48.5°F). The SDAB currently meets National Ambient Air Quality Standards for all pollutants except ozone (O_3), and State standards for all pollutants except O_3 and fugitive dust (PM_{10}). The SDAB is classified as a non-attainment area for O_3 and PM_{10}.

Emissions for the proposed project were calculated and included in Table 3-1. Worst case scenarios were used for the emissions estimates and do not include activities not contained within the proposed project (i.e., excavating, collecting, and transporting sediment to the staging/sorting area). As noted in Chapter 2, *Project Description*, it is unlikely, due to the time of the year that the proposed project would occur and the amount of daylight available, as well as the tides and other factors, that an eight-hour work day would always be feasible.

WOULD THE PROJECT:	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
a) Conflict with or obstruct implementation of the applicable air quality plan or regulation?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations (e.g., children, the elderly, individuals with compromised respiratory or immune systems)?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

DISCUSSION

a) The work associated with the proposed project would not exceed any thresholds, conflict with or obstruct implementation of any applicable air quality plan for San Diego County or SDAB; therefore, there is no impact.

b,c) Activities associated with the transport, staging, and deposition of sediment would result in surface disruption and operation of diesel-powered construction equipment that would emit O_3 precursor emissions. Vehicle trips for the proposed project activities would occur along the paved Monument Road and/or the dirt horse trail road. The potential exists for intermittent and temporary dust generation during trips along the horse trail road; however, the proposed project would include regular watering of unpaved surfaces (with the exception of the intertidal area of Border

Table 3-1. Estimated Project Emissions*

		Average Estimated Emissions (tons/year)**					
Activity	**# equip**	**CO**	**NO_x**	**SO_2**	**ROC**	**PM_{10}**	**CO_2**
Phase I (10 Days)							
Construction Vehicles							
Haul Trucks†	13	0.28	0.45	0.00	0.07	0.04	42.05
Loaders	4	0.06	0.11	0.00	0.02	0.01	10.69
Dozers	8	0.45	0.96	0.00	0.11	0.04	76.51
Sediment Placement††	N/A	N/A	N/A	N/A	N/A	0.03	N/A
Travel (unpaved roads)	13					1.23	
Totals		**0.80**	**1.51**	**0.00**	**0.20**	**1.35**	**129.25**
Significance Thresholds***		100	50	N/A	50	100	N/A
Thresholds Exceeded?		**No**	**No**	N/A	**No**	**No**	N/A
Phase II (10 Days)							
Construction Vehicles							
Haul Trucks†	13	0.28	0.45	0.00	0.07	0.04	42.05
Loaders	4	0.06	0.11	0.00	0.02	0.01	10.69
Dozers	8	0.45	0.96	0.00	0.11	0.04	76.51
Sediment Placement††	N/A	N/A	N/A	N/A	N/A	0.03	N/A
Travel (unpaved roads)	13					1.23	
Totals		**0.80**	**1.51**	**0.00**	**0.19**	**1.35**	**129.25**
Significance Thresholds***		100	50	N/A	50	100	N/A
Thresholds Exceeded?		**No**	**No**	N/A	**No**	**No**	N/A
Phase III (60 Days)							
Construction Vehicles							
Haul Trucks†	9	0.59	0.93	0.00	0.14	0.08	87.33
Loaders	4	0.19	0.32	0.00	0.05	0.02	32.07
Dozers	8	1.36	2.87	0.00	0.32	0.12	229.54
Sediment Placement††	N/A	N/A	N/A	N/A	N/A	0.74	N/A
Travel (unpaved roads)	9					2.55	
Totals		**2.13**	**4.13**	**0.00**	**0.52**	**3.52**	**348.94**
Significance Thresholds***		100	50	N/A	50	100	N/A
Thresholds Exceeded?		No	No	N/A	No	No	N/A
Phase I, II & III							
Aircraft†††	1	N/A	N/A	N/A	N/A	N/A	N/A
Marine Vessel	1	0.802	0.05	0.01	0.04	0.01	4.73
Project Totals		**4.53**	**7.20**	**0.01**	**0.94**	**6.23**	**612.17**
Significance Thresholds		100	50	N/A	50	100	N/A
Thresholds Exceeded?		**No**	**No**	N/A	**No**	**No**	N/A

* Emissions were calculated only for transport of sediment from the staging/sorting area to and along the proposed beach sediment deposition area. Collection and transport of sediment from the sediment basin to the staging and sorting area are covered under an existing permit and is therefore not considered part of the proposed project.

** Estimates were based on *worst case scenarios* for amount of equipment used with an eight-hour workday. Distance traveled by haul trucks along Route 1 includes 1.25 miles on paved road and 1.0 miles on unpaved surface, and is considered *worst case scenario*.

*** Thresholds were obtained from the San Diego County Air Pollution Control District.

† Emissions were estimated from use of a 28-ton haul truck; however, 14-ton haul trucks will be used for the proposed project. Estimates are based on *worst case scenario*.

†† Emissions from operation of equipment used for sediment placement are calculated under "Construction Vehicles."

††† Aircraft emissions are federally regulated under the Federal Aviation Administration (FAA). Under FAA regulations, only emissions from Landing and Take-Off (LTO) operations are required to be calculated; the aircraft will be perform LTO at the San Diego Municipal Airport, which is outside the project area. A Cessna Single Engine Turbo 206 will be flying at 5,000 to 10,000 ft above the project area, making 3-5 passes over the area each day. Due to the aircraft flying below 3,000 ft and LTO occurring at the San Diego Municipal Airport, impacts on air quality will be incremental and not quantifiable.

Field State Beach which is characteristically intermittently inundated with water). The proposed project would not introduce long-term significant O_3 precursors or dust generation. Project activities would include operation and idling of heavy equipment, temporarily increasing emissions. The proposed project would not emit air contaminants at a level that, by themselves, would violate any air quality standard, or contribute to a permanent or long-term increase in any air contaminant.

Project construction would generate short-term emissions of PM_{10} and involve the use of equipment and materials that would emit ozone precursors (i.e., reactive organic gases [ROG] and nitrogen oxides [NO_x]). Increased emissions of PM_{10}, ROG, and NO_x could contribute to existing non-attainment conditions and interfere with achieving attainment goals. Emissions resulting from construction activities would be considered a short-term adverse impact. Implementation of the following mitigation measures would reduce potential impacts to a less than significant level.

MITIGATION MEASURE AIR-1
▪ Work areas, including stockpiled sediments, shall be wet down regularly; ▪ Traffic speed on the unpaved horse trail road shall be limited to 15 miles per hour; and ▪ All equipment engines shall be maintained in good condition, in proper tune (per manufacturer's specifications), and in compliance with all State and Federal requirements.

d) As noted in the III(b,c) discussion above, activities from the proposed project would intermittently generate dust and equipment exhaust emissions over the course of the project. No residences are located on or adjacent to the proposed project site. All work would be confined within park boundaries and no traveler would be required to pass through the proposed project area to traverse the area. Park visitors could be temporarily affected if work occurs on weekends when Monument Road is open to the public. Such impacts would be considered insignificant due to the very short-term and episodic nature. Overall, because thresholds of significance would not be exceeded (Table 3-1) and with the application of **MITIGATION MEASURE AIR-1** above, project air quality impacts would be adverse, but less than significant.

e) The proposed project would not result in long-term generation of odors. The Tijuana Slough occasionally generates strong odors associated with stagnant water and past and ongoing intermittent sewage spills. Project-related emissions may result in short-term generation of odors such as diesel exhaust, fuel vapors, and evaporative emissions. Park visitors and employees may consider such odors offensive. Because construction activities would be short-term, odorous emissions would dissipate rapidly in the air, decreasing with increasing distance from the source. Visitor exposure to these odors would be extremely limited (see [d] above); therefore, potential impacts due to odors would be less than significant.

IV. BIOLOGICAL RESOURCES

ENVIRONMENTAL SETTING

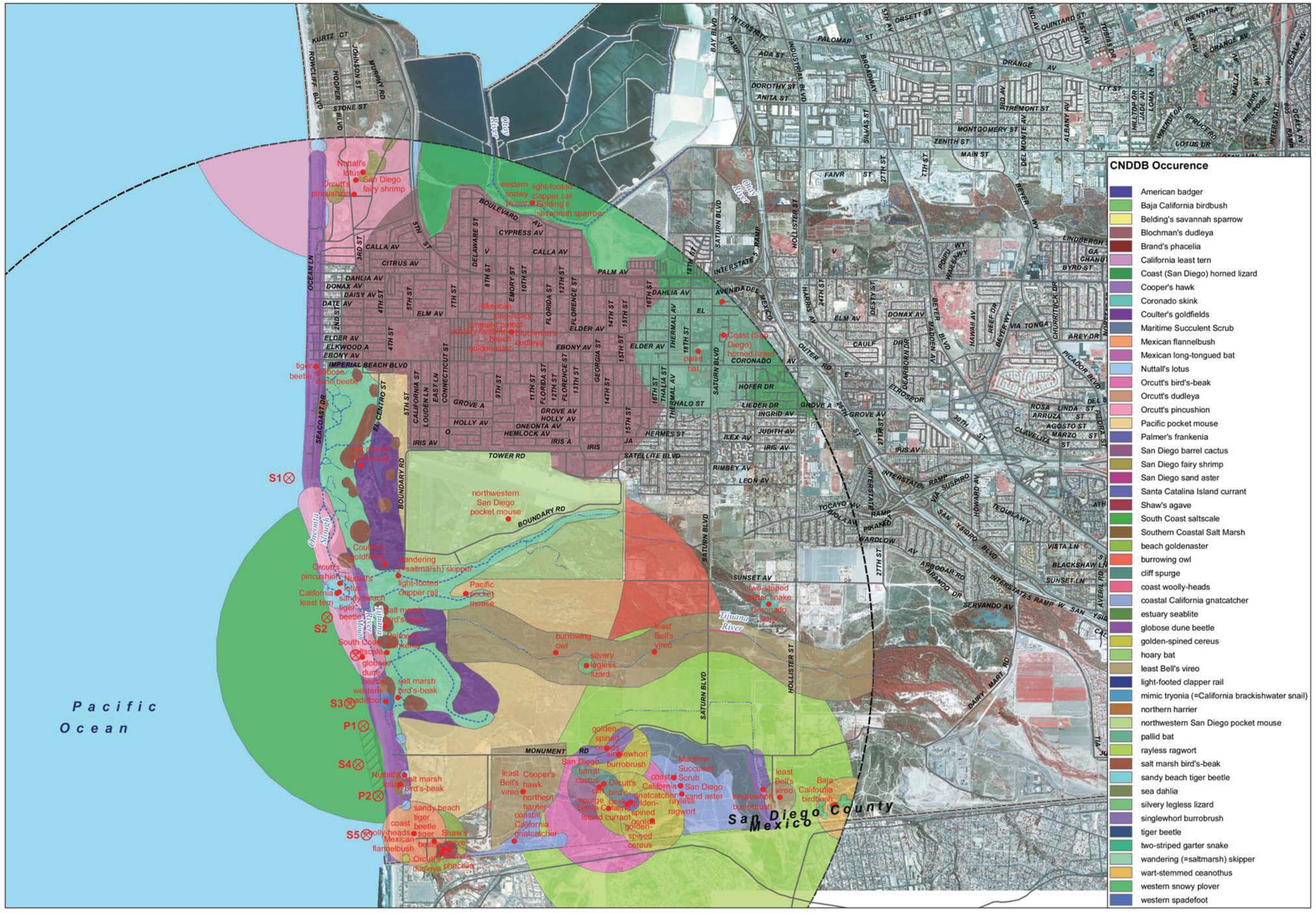
The biological resources of the TRNERR are managed for their preservation in accordance with the Comprehensive Management Plan established in 1999. Portions are also included in the City of San Diego's Multiple Species Conservation Plan of 1997. The TRNERR's biological resources are extensive and diverse. Because it is a research reserve, biological resources are fairly well studied and documented. The following is based on information from the California Natural Diversity Database (CNDDB), California Native Plant Society, USFWS, USACE, and field surveys. Dozens of federally and state-listed endangered, threatened, rare, and sensitive species reside within the TRNERR and are noted below. Refer to Figure 3-1 for the CNDDB map of species and their distribution in the vicinity of the proposed project area.

Terrestrial Biology

The proposed project area is characterized by terrestrial flora and fauna found in 3 distinct habitats: (1) upland/terrestrial; (2) marsh/estuarine; and (3) dune/beach. Table 3-2 lists all of the sensitive terrestrial species that may occur in the proposed project area, their habitat, and frequency of occurrence (see also Figure 3-1). Upland terrestrial habitats border the sediment sorting and staging area, as well as areas along Monument Road and the horse trail road. In this area, southern willow scrub, mule-fat scrub, and ruderal habitats are home to least Bell's vireo (*Vireo belli pusillus*), California gnatcatcher (*Polioptila californica*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), golden eagle (*Aquila chrysaetos*), and Cooper's hawk (*Accipiter cooperi*). The least Bell's vireo is a migratory bird species that winters in Mexico. It nests in the riparian habitat adjacent to the intermittent streams and channels of the Tijuana River. Large areas of least Bell's vireo breeding habitat have been removed as a result of human encroachment. Declines in their population have been exacerbated by parasitism from the brown-headed cowbird (CDPR 2002). The California gnatcatcher inhabits coastal sage scrub, and possibly maritime succulent scrub. This non-migratory, territorial, songbird species is generally considered an obligate resident of coastal sage scrub. This species is threatened with extinction due primarily to the loss and fragmentation of its habitat and the continuing threat of disturbances.

Marsh/estuarine habitat surrounds the horse trail road and Monument Road along the proposed haul route. This area contains southern coastal salt marsh, salt panne, and brackish marsh, which are home to salt marsh bird's beak (*Cordylanthus maritimus*), Coulter's salt marsh daisy (*Lasthenia gracilis*), Belding's savannah sparrow (*Passerculus sandwichenisis beldingi*), light-footed clapper rail (*Rallus longirostris levipes*), western spadefoot toad (*Spea hammondii*)[3], and silvery legless lizard (*Anniella pulchra*). Salt marsh bird's beak is found in coastal salt marshes and dunes of Southern California. It is a federally listed endangered plant species found in the Tijuana Estuary. This plant species occurs at high intertidal areas within the salt marsh/upland transition zone. The salt marsh bird's beak is threatened by impacts from vehicles, road construction, foot traffic, and loss of habitat (CDPR 2002). It is a hemi-parasitic annual plant that occurs at the TRNERR in salt marsh habitat near areas with slightly disturbed soil surfaces. Belding's savannah sparrow is not listed but is classified as Federal candidate 2 and is a resident of the TRNERR. The light-footed clapper rail is a year-round resident of coastal salt marshes of the west coast of the U.S. (Tierra Environmental Services Inc. 2001). The population that nests in and adjacent to the TRNERR is the second largest in the U.S. and is federally listed as endangered (CDPR et al. 2007). The primary habitat of the light-footed clapper rail is far-removed from the proposed project area. This bird species is typically found in the central

[3] The recorded observation of western spadefoot toad may have been an isolated incident, as the marsh and back dune habitat are not typical for this species. It is possible that the toad washed down from elevated canyons above the Estuary.



Legend

- CNDDB Point
- Sample Locations

USGS NHD Lines

- Pipeline
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River

Base Data

- Local Road
- 3-mile Buffer Boundary
- Placement
- U.S. - Mexican Border

CNDDB Occurence

- American badger
- Baja California birdbush
- Belding's savannah sparrow
- Blochman's dudleya
- Brand's phacelia
- California least tern
- Coast (San Diego) horned lizard
- Cooper's hawk
- Coronado skink
- Coulter's goldfields
- Maritime Succulent Scrub
- Mexican flannelbush
- Mexican long-tongued bat
- Nuttall's lotus
- Orcutt's bird's-beak
- Orcutt's dudleya
- Orcutt's pincushion
- Pacific pocket mouse
- Palmer's frankenia
- San Diego barrel cactus
- San Diego fairy shrimp
- San Diego sand aster
- Santa Catalina Island currant
- Shaw's agave
- South Coast saltscale
- Southern Coastal Salt Marsh
- beach goldenaster
- burrowing owl
- cliff spurge
- coast woolly-heads
- coastal California gnatcatcher
- estuary seablite
- globose dune beetle
- golden-spined cereus
- hoary bat
- least Bell's vireo
- light-footed clapper rail
- mimic tryonia (=California brackishwater snail)
- northern harrier
- northwestern San Diego pocket mouse
- pallid bat
- rayless ragwort
- salt marsh bird's-beak
- sandy beach tiger beetle
- sea dahlia
- silvery legless lizard
- singlewhorl burrobrush
- tiger beetle
- two-striped garter snake
- wandering (=saltmarsh) skipper
- wart-stemmed ceanothus
- western snowy plover
- western spadefoot

Map Notes

Data Source
Sample Location - AMEC
Major Freeway - SANDAG
Local Road - SANDAG
Streams - USGS
U.S- Mexican Border - SANDAG
2000 1-foot False Color Aerial - SANDAG

Projection: State Plane California 406
NAD 83, Feet
Path: \ProjectG\Aquatics\Tijuana\mxd\cnddb.mxd
Date: 10/17/2007

N

1 inch equals 3,000 feet

0 1,500 3,000 6,000 Feet

CNDDB Special Status Species Occurence
Tijuana River National Estuarine Research Reserve
San Diego, California

FIGURE
3-1

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Table 3-2. Sensitive Terrestrial Species that May Occur in the Proposed Project Area

Common Name	Scientific Name	Status	Habitat	Relationship to project
Plants				
Nuttall's lotus	*Lotus nuttallianus*	FSOC	Beaches, coastal dunes, coastal sage scrub areas below 50m	Restricted to dunes; outside area of project activities
Salt marsh bird's beak	*Cordylanthus maritimus*	FE; SE	Coastal dunes & salt marshes below 10m	Restricted to marsh areas; outside area of project activities
Invertebrates				
Globose dune beetle	*Coelus globosus*	FSOC	Areas of bright sunlight, open sandy areas & beaches	Occurs in dunes and beach berm; forages in intertidal areas
Sandy beach tiger beetle	*Cicindela hirticollis gravida*	FSOC	Areas with bright sunlight, open sandy areas & beaches	Occurs in dunes and beach berm; forages in intertidal areas
Tiger beetle	*Cicindela sp.*	FSOC	Areas with bright sunlight, open sandy areas & beaches	Occurs in dunes and beach berm; forages in intertidal areas
Birds				
Least Bell's vireo	*Vireo belli pusillus*	FE; SE	Riparian areas with dense understory vegetation	Occurs near sediment sorting area and access roads; absent in winter
California gnatcatcher	*Polioptila californica californica*	FT	Coastal sage scrub	Occurs near sediment sorting area and Monument Road
Burrowing owl	*Athene cunicularia hypugea*	FSOC	Open prairies, fields, farmlands. Nests in holes in the ground.	Occurs near sediment sorting area and access roads
Northern harrier	*Circus cyaneus*	SSOC	Saltmarshes, open fields, prairies	Occurs near sediment sorting area and access roads
Golden eagle	*Aquila chrysaetos canadensis*	SSOC	Nest sites usually on vertical cliffs; foraging habitat incl. grasslands, broken chaparral, sage scrub	Occurs near sediment sorting area and access roads
White-tailed kite	*Elanus leucurus*	FSOC	Open groves, river valleys, marshes, grasslands	Occurs near sediment sorting area and access roads
California horned lark	*Eremophila alpestris actia*	SSOC	river valleys, marshes, grasslands	Occurs near access roads
Belding's savannah sparrow	*Passerculus sandwichenisis beldingi*	FSOC; SE	Open fields, meadows, saltmarshes, prairies, dunes, shores	Occurs near access roads

Table 3-2. Sensitive Terrestrial Species that May Occur in the Proposed Project Area (continued)

Common Name	Scientific Name	Status	Habitat	Relationship to project
Light-footed clapper rail	*Rallus lognirostris levipes*	FE; SE	Salt marshes, brackish marshes	Occurs near access roads
California least tern	*Sternulae antillarum*	FE; SE	Migratory; uses beaches, large rivers & bays; nests on sandy areas	Breeds on beach near sediment deposition area; absent during winter
Western snowy plover	*Caradrius alexandrinus nivosus*	FT	Beaches & sandy flats along the coast	Breeds on beach near sediment deposition area; over-wintering population at river mouth to north

FE = Federal Endangered
FSOC = Federal Species of Concern
SE = State Endangered
SSOC = State Species of Concern
FT = Federal Threatened
ST = State Threatened

Sources: CDFG 2007; CDPR et al. 2007; City of Goleta et al. 2004; Tierra Environmental Services Inc. 2001; USFWS 2007.

and northern areas of the Estuary where tidal channels and low coastal salt marsh habitats containing Pacific cordgrass (*Spartina foliosa*) are well-developed, and conditions are optimal for nest-building. Cordgrass grows in tidal channels characterized by frequent inundation with water. The one tidal channel underneath the bridge on the horse trail road has limited tidal circulation, lacks cordgrass, and would not be affected by the proposed project. Habitat extent for both the western spadefoot toad and the silvery legless lizard is unknown for the proposed project area at this time. However, because both require moisture for survival and breeding, they are not anticipated to frequent the access roads or be present in the sediment deposition area.

Dune and beach habitats occur at the ends of Monument Road and the horse trail road, and extend to the north end of the proposed project area south of the Tijuana River mouth. These dune and beach habitats support southern foredune habitat that is home to rare species such as the Brand's pachelia (*Phacelia stellaris*), globose dune beetle (*Coelus globosus*), sandy beach tiger beetle (*Cicindela hirticollis gravida*), California least tern (*Sternulae antillarum*), and western snowy plover (*Caradrius alexandrinus nivosus*). The globuse dune beetle is a burrowing beetle species restricted to foredunes immediately adjacent to the ocean and have the ability to withstand frequent contact with seawater (City of Goleta et al. 2004). The sandy beach tiger beetle occupies sandy beaches and coastal scrub habitats near estuaries. The larvae burrow along the wet margins of estuaries. Adult beetles are carnivorous and feed on flies and other insects common to the high tide zone (City of Goleta et al. 2004). These species have the potential to occur along the beach proposed for sediment deposition activities. The California least tern is federally listed as endangered and nests along the ocean beach/barrier dunes bordering the TRNERR. The western snowy plover is federally listed as threatened and breeds on the dunes and along the beach near the mouth of the Tijuana River, near the proposed project area. The southern foredune and beach area is designated as critical habitat for this species. The breeding seasons of the California least tern and the western snowy plover are 1 April through 30 September, and 1 May through 30 June, respectively. Therefore, the proposed project would not occur during their breeding seasons. However, over-wintering populations of up to 80 western snowy plover are known to inhabit the beach area for approximately 200 yards south of the Tijuana River mouth (Robert Patton personnel communication 2007).

Aquatic Biology

The TRNERR contains 250 acres of coastal dune, beach, mud flat, and tidal channel habitats, and approximately 750 acres of salt marsh, salt flat, and maritime habitats (USACE 1995). The dominant offshore habitat in the project area is characterized as sandy intertidal. The offshore area south of the slough mouth outside the surf zone is populated by sand dollars (*Dendraster excentricus*). North of the slough mouth, cobble in the sand supports low to moderate understory red algae (AMEC 2007c). Pismo clams, a game species regulated by the CDFG, are known to occur near Imperial Beach Pier approximately 2 miles north of the project area; none are known to occur at the proposed project site.

Table 3-3 lists all sensitive marine species that may occur in the proposed project area. Some of the bird species were also previously mentioned in the terrestrial biology section above. The bird species most likely to occur within the proposed project area include the light-footed clapper rail, Belding's savannah sparrow, the California least tern, the western snowy plover, and the California brown pelican (*Pelecanus occidentalis californicus*) (USACE 1995). The California brown pelican feeds offshore and is federally listed as endangered. This bird species is strictly coastal and frequents open nearshore waters along the California coast, though many leave in late winter and early spring for nesting sites in Mexico and on the Channel Islands (City of Goleta et al. 2004). The California brown pelican has been observed in the nearshore ocean waters throughout Border Field State Beach (USACE 1995).

California grunion (*Leuresthes tenuis*) use the upper intertidal habitat of beaches for spawning from late February to early September. Activity is expected to be concentrated from late March to early June, which does not coincide with the proposed project's implementation period. California grunion spawn at night as the highest tides recede and after approximately two weeks, recently hatched fish larvae are swept out to sea during high tides. California grunion are known to spawn on nearby Imperial Beach (USACE 1995).

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands, as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

Table 3-3. Sensitive Marine Species that May Occur in the Proposed Project Area

Common Name	*Scientific Name*	Status	Habitat	Relationship to Project
Invertebrates				
White abalone	*Haliotis sorenseni*	FE	Open, low relief rock or boulder habitat surrounded by sand at 80 to 200 feet depths (Hobday and Tegner 2000)	Low potential to occur in offshore waters
Fish				
California grunion	*Leursthes tenuis*	SS	Nearshore waters from surf to 60 feet, spawns onshore on sandy beaches, prefer gently sloping beaches	Breeding season does not coincide with project activities
Southern steelhead	*Oncorhynchus mykiss*	FE (south of Santa Maria River)	Anadromous; returns to natal streams and rivers to spawn	Low potential to occur in offshore waters or as vagrant in Slough
Reptiles				
Loggerhead sea turtle	*Caretta caretta*	FT	Open ocean, coastal waters, and beaches	Low potential to occur in offshore waters
Pacific Ridley sea turtle	*Lepidochelys olivacea*	FT	Open ocean, coastal waters, and beaches tropical and warm temperate waters	Low potential to occur in offshore waters
Leatherback sea turtle	*Dermochelys coriacea*	FE	Open ocean, coastal waters, and beaches	Low potential to occur in offshore waters
East Pacific green sea turtle	*Chelona mydas agassizii*	FT*	Open ocean, coastal waters, and beaches	Low potential to occur in offshore waters
Birds				
California brown pelican	*Pelecanus occidentalis californicus*	FE; SE (nesting colony)	Pelagic; Beach and nearshore waters	Known to occur in offshore waters, roost on beach
Marbled murrelet	*Brachyramphus marmoratus*	FT; SE	Forages in nearshore waters	Low potential to occur in offshore waters
Xantus' murrelet	*Synthliboramphus hypoleucus*	ST	Forages in nearshore waters	Low potential to occur in offshore waters
Mammals				
Guadalupe fur seal	*Arctocephalus townsendi*	FT	Rocky shorelines and caves	Low potential to occur in offshore waters
Steller sea lion	*Eumetopias jubatus*	FT	Rocky and sandy beaches; temperate waters	Low potential to occur in offshore waters
Southern sea otter	*Enhydra lutris nereis*	FT	Shallow nearshore waters with rocky or sandy bottoms that support large populations of their benthic invertebrate prey (Aspen 2005)	Low potential to occur in offshore waters

Table 3-3. Sensitive Marine Species that May Occur in the Proposed Project Area (continued)

Common Name	*Scientific Name*	Status	Habitat	Relationship to Project
Blue whale	*Balaenoptera borealis*	FE	Cold and temperate waters offshore	Low potential to occur in offshore waters
Sei whale	*Balaenoptera borealis*	FE	Temperate and subtropical waters	Very low potential
Fin whale	*Blaenoptera physalus*	FE	Cold and temperate waters offshore	Very low potential
Humpback whale	*Megaptera novaeangliae*	FE	Migrate along submarine ridges and occasionally enter the coastal waters of the San Pedro and Santa Barbara Channels (Lagomarsino and Price 2001)	Low potential to occur in offshore waters
Northern right whale	*Balaena glacialis*	FE	Temperate waters along the shelf and slope	Very low potential
Sperm whale	*Physeter macrocephalus*	FE	Offshore waters year-round in water depths greater than 3330 feet	Very low potential
Other coastal pelagics and Pacific groundfish per Magnuson-Stevens Act	Includes 4 finfish and market squid, as well as 85 species of groundfish	Various		Moderate potential

*This species is listed as FE along the Pacific coast of Mexico and FT in all other areas. Given the proximity of the proposed project to Mexico, it is noted that populations in the area may also be considered FE.

FE = Federal Endangered
SE = State Endangered
SS = Special Status
FT = Federal Threatened
ST = State Threatened

Sources: AMEC 2007b, 2007c; NMFS 2007; USFWS 2007

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

DISCUSSION

a) Several species within the proposed project area and TRNERR are identified as sensitive, candidate, or special status species. As discussed in the environmental setting section above, while many of these rare species occur in the general project vicinity, most occur in habitats surrounding the sediment staging/sorting area and access roads that would not be directly disturbed by project activities, but would be subject to episodic disturbance for up to four months. Project activities would not involve any direct disturbance of wetland or terrestrial habitats, but only short-term noise and dust emissions impacts to these nearby habitats. These activities would be of short duration and occur outside of the breeding season; thus, these short-term disturbances would not

be considered significant. In addition, many of the sensitive bird species in the area (with the exception of the California gnatcatcher, the light-footed clapper rail, and over-wintering western snowy plover populations) are migratory and would not be present during implementation of the proposed project. Finally, although some rare species such as the California brown pelican, white-tailed kite and burrowing owl would be disturbed and possibly displaced to adjacent habitats during intermittent construction cycles over the three to four month period, such impacts would be considered adverse but not significant because of their short-term episodic nature and the project's scheduling outside of the breeding season. High quality foraging and roosting locations nearby would serve as available habitat for displaced birds.

However, several rare species could potentially be directly affected by the proposed project. These include the globuse dune beetle, sandy beach tiger beetle, another tiger beetle species, and over-wintering western snowy plovers. Haul trucks would transport sediment from the staging/sorting area, along Monument Road and/or the horse trail road to the beach and then north along the intertidal areas of the beach to deposition areas south of the slough mouth, where these species reside. Bulldozers would operate along the lower intertidal areas of the beach to push sand into the proper location. Operation of this heavy equipment on the beach could lead to crushing of rare invertebrates such as the globose dune and sandy beach tiger beetles. In addition, noise from the heavy equipment and the sheer presence of such equipment could disturb and possibly harm these sensitive species. However, heavy equipment operation would be restricted to intertidal areas, outside the dune and beach berm areas that are of primary importance to the globose dune and sandy beach tiger beetles. In addition, all project construction activities would be prohibited from an area within 400 yards of the slough mouth and monitored by a qualified western snowy plover biologist to protect the highest quality over-wintering roost area of this sensitive bird species. The project currently allows approximately 860 yards of distance between this area and the northern end of the sediment deposition zone. Such measures would reduce project impacts to these species to less than significant.

Species that could be affected through potential habitat modification include the western spadefoot toad and the silvery legless lizard. The horse trail road is susceptible to excessive erosion and sedimentation into the salt panne and marsh habitats that would occur from heavy trucks operating in muddy soils on the dirt road which could disturb habitat for the western spadefoot toad and silvery legless lizard.

Implementation of the following mitigation measure would reduce potential impacts to the western snowy plover, the globuse dune beetle, the sandy beach tiger beetle, the western spadefoot toad, and the silvery legless lizard to a less than significant level:

MITIGATION MEASURE BIO-1
▪ A minimum 400-yard buffer zone south of the slough mouth shall be incorporated into the project design to minimize impacts to the over-wintering population of snowy plover. This buffer shall be staked and delineated with signs; all vehicle traffic and primary construction activities shall be prohibited from this area; ▪ The project shall utilize a project monitor and qualified western snowy plover biologist to ensure compliance with the above measure and to monitor plover behavior. The monitor, in consultation with the CDPR, shall have the authority to suspend work as needed or increase the required buffer to up to 600 yards south of the slough mouth to protect the plover; ▪ All heavy equipment operation shall be prohibited from the dunes and beach berm, except where the horse trail road and Monument Road enter the beach and steel grating plates shall be employed at dune crossing points. All construction activity would be precluded from the beach berm which would be staked and signed "no vehicle entry" and enforced by project monitors; ▪ Monument Road would be used as the wet-weather truck haul route; and ▪ The horse trail road would be used only during dry weather conditions and regular monitoring and/or implementation of sediment control measures (see **MITIGATION MEASURE GEO-1**) would be required to ensure erosion is minimized.

b) While riparian habitat does exist within the TRNERR, it does not occur at or in proximity to the proposed project site. There is ongoing removal of young riparian vegetation within the detention basins under existing permits, but is not part of this project. Impacts to riparian habitat or other sensitive natural communities would be less than significant.

c) Federally protected wetlands are present in the vicinity of the proposed project site. However, project activities would occur in upland habitat mostly along a paved road and along the beach. The proposed project is expected to have less than significant impacts on wetlands.

d) The proposed project would not substantially interfere with the movement of any native resident migratory fish or wildlife species. Additionally, the proposed project would occur outside of the breeding seasons of most resident and migratory birds in the area; therefore, nursery sites would not be utilized during implementation of the proposed project. The over-wintering western snowy plover roost site would be protected with the implementation of **MITIGATION MEASURE BIO-1**. Some established native resident or migratory fish and wildlife corridors may be temporarily and/or intermittently disturbed by project-generated noise, however, these impacts would be considered insignificant as they would occur outside of the breeding season and would be short-term. Disturbance to marsh habitat adjacent to the horse trail road would be avoided by **MITIGATION MEASURE BIO-1** with the monitoring and dry use of the horse trail road to reduce erosion and sedimentation.

e,f) The proposed project would be consistent with all conservation plans, policies, or ordinances that apply to the project area.

V. CULTURAL RESOURCES

ENVIRONMENTAL SETTING

In accordance with CEQA Section 15150 *Incorporation by Reference*, a more extensive evaluation of cultural resources in the vicinity of the proposed project can be found in the *Final Initial Study and Mitigated Negative Declaration for Border Field State Park and Tijuana Estuary Visitor Center* (CDPR 2002).

Pre-History

The proposed project lies within the traditional territory of the Kumeyaay, a Native American tribe also referred to as Diegueno and Ipai-Tipai. The traditional territory of the Kumeyaay includes a significant portion of present-day San Diego County. Estimates of Kumeyaay population prior to Spanish colonization are difficult to obtain. Based upon data from Spanish records and archaeological information, the most recent figures for population range from 10,000 to 17,000 individuals. Diseases introduced by the Spanish and other European colonizers resulted in significant decreases in Kumeyaay populations. Their language, called Diegueno, belongs to the Yuman linguistic family, a division of the Hokan Stock which is considered the oldest language group in California. The Kumeyaay organized themselves into territorial bands. The band territory consisted of a section of a major drainage and its tributaries. Each band had a central village and a number of outlying camps typically located at small water sources, springs, or along secondary creeks. They were semi-sedentary residents of certain favored locations or base camps. These camps were selected for their favorable environmental conditions such as access to water, plant foods, seafood, and hunting areas, as well as a natural microclimate or protection from strong winds. Kumeyaay who resided in the Imperial Valley and Salton Basin practiced agriculture in the late spring when the Colorado River overflowed its banks.

History

In 1769 A.D., Spain colonized present-day San Diego County. With the establishment of a mission and presidio at the southwestern entrance to today's Mission Valley, Spain reinforced its claim to Alta California. While the TRNERR is located within the area of Spanish influence, there is little known historic or archaeological evidence of the impact the Spanish had on the indigenous people of the Tijuana River Valley. Archaeological sites of early historic times are relatively unknown within the Tijuana River Valley and Otay Mesa region.

Immediately after the Mexican War (1846-1848), Mexico sold a large portion of its northern territories to the United States, including Alta California. In 1851, a 15-foot high obelisk and permanent boundary marker was erected and became a major tourist attraction, despite its distance from populated areas. It is estimated that over 100,000 tourists visited the monument during the late 1880s. The monument was placed on the National Register of Historic Places on September 6, 1974. This is the only registered, non-archaeological historical resource located in the vicinity of the proposed project area.

Farms were being established in the Tijuana River Valley by the mid-1880s, reflective of the general expansion of rural agricultural settlements throughout San Diego County between 1870 and 1890. However, the area within the proposed project remained fairly unused and undeveloped in the early decades of the twentieth century. According to a 1904 USGS San Diego Quadrangle map, there were no roads or buildings, but there were a few houses located within the Tijuana River Valley east of Monument Mesa. In 1910, U.S. troops of the 3rd Oregon Infantry arrived and set up camp near the monument, which was abandoned in 1931 and remained deserted until 1940. In the early 1940s, the U.S. Navy acquired approximately 81 acres of land along the border and in the Tijuana Estuary and established Border Field Auxiliary Landing Field (ALF), including an auxiliary landing field administered from Ream Field ALF north of the estuary that it featured 35 buildings by 1943. The Army erected a base-end or fire control station during World War II (WW-II), with bunkers and other structures near

Border Field east of Monument Mesa on "Bunker Hill." Before the lands became part of the State Park System, the Navy's buildings were demolished.

After the war, local groups lobbied governmental authorities to declare the International Boundary Monument as a state and national historic landmark. California voters approved money for the acquisition of Border Field as a state park in the 1964 Bond Act and State eventually acquired 372 acres for BFSP. A bronze plaque and tree a few yards north of the International Boundary Marker commemorate the declaration of the park.

Archaeology

Portions of the TRNERR contain prehistoric and historic archaeological sites. The remains of prehistoric camps, including evidence of shellfish gathering, stone tool manufacturing, food preparation and other activities are present in areas of the park. Some Early Period prehistoric sites within the Tijuana River Valley and Estuary have been buried under alluvium layers, some several meters deep. Historic sites within the River Valley include the remains of farms dating from the late nineteenth century to the early 1900s, as well as military facilities from WW-II onward. Several of the prehistoric and historic sites within BFSP are eligible for the National Register of Historic Places, indicating the significant ethnic, public, and scientific values inherent in these sites. They represent some of the last intact complexes of coastal sites in the region.

The precise location of WW-II buildings and other historic and cultural remnants in relation to Monument Road is unknown. It is estimated that approximately 35 buildings exist in the area, some of which were reached at approximately six inches below the surface of the road (CDPR 2008). Monument Road has long served the southern part of BSFP and the condition of the road overlying the cultural resources beneath is unknown. Although the road has been repaired and upgraded within the last ten years, the potential for the road to become degraded and/or require repairs is uncertain. This MND assumes a reasonable worst case scenario for analysis, which is that the road could be subject to potential damage requiring minor repairs or substantial upgrades.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource, pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

DISCUSSION

a) The only historic resource identified from departmental records and park files from the State Parks' Southern Service Center Cultural Resource Division was the International Boundary Monument, which is listed in the National Register. The International Boundary monument is not located within the area of the proposed project and therefore would not be affected.

No excavating or construction along Monument Road is included in the Project Description (Chapter 2). However, because the structural capacity of Monument Road is uncertain, this analysis assumes a reasonable worst case scenario, which could be that repairs or upgrades to the road

may be necessary for project to be carried out. Because the presence of the historical resources beneath and around Monument Road is also uncertain, the implementation of the following mitigation measure is required to reduce impacts on historical resources to less than significant:

MITIGATION MEASURE CULTURAL-1
▪ A historic study, including a map and literature review, in order to define the precise location of the remains and foundations of historic WW-II buildings that lie beneath and around Monument Road shall be completed; ▪ Archaeological testing to identify building foundation edges, confirm mapped building locations and current elevation for remains of those historic structures in close proximity to or underlying Monument Road that have the potential to be affected by compression or compaction from heavy vehicle use or by any road repairs/improvements deemed necessary for successful implementation of the proposed project shall be undertaken; ▪ An engineering review of the structural adequacy of Monument Road to (1) accommodate heavy haul equipment, (2) the estimated potential for such haul traffic to cause substantial damage to the road, (3) identify any possibility of subsurface compaction or compression below the road grade, (4) recommendations for any road improvements that would be necessary to prevent damage to the road and those resources beneath the road, and (5) determination of any road improvements needed to accommodate the project and/or return the road to its pre-project state shall occur; and ▪ If road improvements or upgrades are required, an archaeological monitor shall be present during all road repair/construction activities and empowered to stop work or direct other modifications as needed to protect cultural remains.

b) Similar to V-a above, **MITIGATION MEASURE CULTURAL-1** assumes the worst case scenario for the condition of Monument Road and the location of archaeological resources near the surface. Implementation of this mitigation measure would reduce potential impacts on archaeological resources to less than significant.

c) The proposed project would not disturb any human remains, as the historic and archaeological resources are considered to be structural and foundations of old buildings; therefore, no impact.

VI. GEOLOGY AND SOILS

ENVIRONMENTAL SETTING

Geology

The proposed project is located within the larger Coastal Plain Geomorphic Province. This coastal plain is characterized by a series of wave-cut terraces that extend inland for approximately 10 miles. These terraces have been dissected by various rivers, such as the Tijuana River, forming a series of wide, alluvium-filled valleys. Poorly unconsolidated clays, silts, sands, and gravels characterize the alluvium of these valleys, including the Tijuana River Valley. Sandstones, shales, and limestones underlie these unconsolidated deposits. Recent beach sand deposits occur along the shoreward length of the Tijuana Estuary. The lower valley is bound to the north, east, and south by sandstone and conglomerates that account for the topography of the mesa (CDPR 2002).

The proposed project area lies within a seismically active region subject to the effects of moderate to large earthquake events along major faults. The regional faults that may affect the area include the Rose Canyon, Coronado Bank, La Nacion, Elsinore, San Jacinto, and San Andreas faults, all between 15 and 30 miles from the proposed project area. Various fault lines are mapped at Spooner's Mesa and Bunker's Hill, immediately east and west of Goat Canyon. Concealed faults occur within the Tijuana River Valley near the proposed project site. Ground rupture is typically associated with moderate to severe earthquakes occurring along active fault lines. None of the faults in the vicinity of the proposed project are considered active (Tierra Environmental Services Inc. 2001).

Soils

Six soil series occur in the proposed project area: Chesterton, Chino, Marina, Riverwash, Tidal Flats, and Terrace escarpments. Sand transported from the beach during storms occasionally covers the mudflats at the river mouth and lower parts of the estuary. The soils around the project site have a high erosion potential. The sediment discharge for the system has increased significantly from its natural state due, in part, to increased development in the upper watersheds and an increase in the number of avulsion channels at the mouth of canyons in the area. These avulsion channels divert water from the main channel and spread them over the continually-expanding alluvial fan. The fine sandy loams covering the mesas and terraces to the south are also highly erodable and are likely contributing to downstream sedimentation (CDPR 2002).

Paleontology

Due to the young age of the alluvium and slope wash in the vicinity of the proposed project area, the potential for paleontological resources to be found is very low. However, mammoth teeth and limb bones have been discovered within the floodplain residues of the Tijuana River Valley. Along with a few other paleontological finds in the San Diego area, such findings suggest that despite a low potential for paleontological discovery in the area, findings are still possible (Tierra Environmental Services Inc. 2001).

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as	☐	☐	☒	☐

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area, or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)				
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable, as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems, where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?	☐	☒	☐	☐

DISCUSSION

a) The proposed project site lies within a seismically active region subject to moderate to large earthquakes and their associated effects. Since the proposed project is a short-term sediment transport project, it would not substantially increase the exposure of people or structures to risk of loss, injury, or death as a result of seismic activity, creating a less than significant impact to people from seismic events.

b) During rain events, the potential exists for loss of soil from the unpaved access route referred to as the horse trail road, particularly if heavy truck traffic causes a deterioration in the road surface. The following mitigation measure would reduce potential impacts to a less than significant level.

MITIGATION MEASURE GEO-1
▪ The horse trail road would not be used during rain events. Additionally, the road would be monitored and any necessary erosion control measures would be implemented to prevent erosion and sedimentation to the surrounding marsh areas. At the discretion of the project monitor and State Park personnel, erosion control measures may include limited use of gravel within the existing road bed and installation of silt fencing and straw waddle and/or other sediment-retention measures along the edges of the road. The road would be restored to its existing condition upon cessation of the proposed project.

c) Areas adjacent to the river may have a higher potential for liquefaction. However, the project would not involve any new construction or exposure of structures to liquefaction potential. Impacts would be less than significant.

d) Soils in the vicinity of the proposed project are not considered to be expansive. Therefore, there would be no impacts.

e) No septic tanks or alternative waste disposal systems are required or being constructed for the proposed project. Therefore, the capacity of the soils to adequately support waste disposal systems is irrelevant and there would be no impacts.

f) While there are no known unique paleontological resources, sites, or unique geological features within the proposed project area, implementation of **MITIGATION MEASURE CULTURAL-1** would protect any such resources from impacts due to the proposed project, in the event that Monument Road requires upgrades or repairs.

VII. HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL SETTING

Soil Contamination

Prior to the construction of the South Bay International Wastewater Treatment Plant (SBIWTP) by the International Boundary and Water Commission (IBWC), renegade wastewater flows from Tijuana frequently entered the U.S. from north-draining canyons and gullies, potentially contaminating alluvial soils of the Tijuana River Valley with treated and untreated wastewater. The pathogens in domestic sewage are primarily associated with insoluble solids. Primary wastewater treatment processes transform these solids into sewage sludge, so untreated or raw primary sewage has higher quantities of pathogens than the incoming wastewater. Even post-treatment sewage sludge may contain sufficient levels of pathogens posing a public health concern. Direct contact through touching sewage sludge and inhaling airborne microbes can expose humans to these pathogens (Tierra Environmental Services Inc. 2001).

Sediment contamination testing was conducted in February 1999 for the Tijuana Estuary Model Marsh Project. The results indicated that generally, the sediments are not contaminated and have with only low levels of copper, lead, and zinc detected and the levels of metals present are below ambient background levels (Tierra Environmental Services Inc. 2001).

Beach Contamination

The frequent discharge of sewage into the Tijuana Estuary has been a long-running public health issue. From 1980 to 1991, the two miles of beach from the international border to the south end of Seacoast Drive were under almost continuous quarantine due to violations of total coliform standards. In 1998, quarantines numbered in the high teens. In 1999, a total of 9 quarantines occurred. Most of these closures were due to the contamination of seawater from the Tijuana River. Ultimately the contamination flowed into the Pacific Ocean, causing the areas from Imperial Beach to the international border to be quarantined for up to 10 days (Tierra Environmental Services Inc. 2001). Although construction of the IBWTP has substantially reduced the volume and frequency of sewage flows reaching the estuary, water quality in the area remains an issue and beach closures have occurred as recently as November 2007 (Heal the Bay 2007).

Vectors

Several of the 11 mosquito species known to occur in the Tijuana River Valley are capable of transmitting diseases. The western encephalitis mosquito (*Culex tarsalis*) is a potential vector for western equine encephalomyelitis and St. Louis equine encephalitis. Those that serve as vectors in the transmission of viral encephalitis exist in higher numbers in the Tijuana River Valley than anywhere else in San Diego County. Conditions in the valley have reduced the effectiveness of mosquito predators.

Fires

The proposed project is located on the beach and in salt marsh habitat which are not typically vulnerable to fires. However, the site is near habitats (e.g., coastal sage scrub) that are susceptible to fires.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials, substances, or waste into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites, compiled pursuant to Government Code §65962.5, and, as a result, create a significant hazard to the public or environment?	☐	☒	☐	☐
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) Be located in the vicinity of a private airstrip? If so, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death from wildland fires, including areas where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

DISCUSSION

a) Proposed project activities would require some use of potentially hazardous materials, such as fuels, oils, and solvents used for equipment, but would be contained within vessels engineered for safe storage. Large quantities of such materials would not be stored on-site. Spills, upsets, or other project-related accidents, along with the transporting and deposition of contaminated sediment could result in the release of fuel or other hazardous substances into the environment. The following mitigations would reduce the potential for adverse impacts from incidents to less than significant:

MITIGATION MEASURE HAZMAT-1
▪ All equipment shall be inspected for leaks immediately prior to the start of project activities, and regularly inspected henceforth until equipment is removed from the premises; ▪ The contractor(s) shall prepare an emergency spill response plan prior to the start of the project and maintain a spill kit on-site throughout the duration of the proposed project. The emergency plan shall include a map delineating staging areas, where refueling, lubrication, and maintenance of equipment may occur. In the event of a spill or release of any chemical during activities associated with the proposed project, on or adjacent to wetlands or on park property, the contractor shall immediately notify the appropriate CDPR staff (e.g., project manager or supervisor). Emergency containment procedures shall be initiated immediately to prevent wetland or beach contamination; ▪ Equipment shall be cleaned and repaired outside park boundaries, except during emergency situations. All contaminated water, sludge, spill residue, or other hazardous compounds shall be disposed of outside park boundaries, at a permitted or authorized location; and ▪ All sediment being transported, sorted, and deposited shall be first screened, tested, and treated for trash, fecal coliform bacteria, heavy metals, petroleum distillates and any other contaminants. If treatment does not bring sediment to acceptable usable levels, sediment shall be disposed of at an approved disposal site.

b) Refer to VII-a discussion above. **MITIGATION MEASURE HAZMAT-1** would reduce the potential for adverse impacts to a less than significant level.

c) Because there are no schools or proposed schools within one-quarter mile of the proposed project site, this section is irrelevant (no impact).

d) The proposed project area is not included on a list of hazardous materials sites pursuant to Government Code §65962.5. Therefore, no impact would occur during the project. However, possible vector and contamination hazards are addressed below with a proposed mitigation measure to follow.

Vectors

According to the County Department of Environmental Health, the potential for attracting significant numbers of mosquitoes occurs when water is stagnant for 7 or more days (Tierra Environmental Services Inc. 2001). The proposed project area is not situated next to or expected to produce standing water; therefore, impacts related to vectors are not considered significant.

Contamination

On-site workers could be exposed to contaminated sediment. Since soil contamination within the proposed project area would come from wastewater, which has fewer quantities of pathogens and is less concentrated than sludge, the precautions recommended for safe handling of sludge would be adequate to reduce the potential health risk to less than significant.

MITIGATION MEASURE HAZMAT-2 - CONTAMINATES

- Sediment used for the proposed project shall be screened, tested, and treated; and
- Workers shall employ the following measures to minimize exposure to potential pathogens associated with untested sediment or sediment found to be contaminated and not approved of for disposal on beach:

1. Wash hands regularly, especially before eating, drinking, smoking, or using the restroom.
2. Wear gloves.
3. Cover wounds with clean, dry bandages.

e,f) The proposed project would be located within 2 miles of the Imperial Beach Naval Outlying Field, with frequent helicopter over-flights in the proposed project vicinity. However, because employee population densities would be very low and because the TRNERR is not located within an airport land use plan or within 2 miles of a public airport or public use airport, the proposed project would not result in a safety hazard for people residing or working in the project area. The proposed project also is not in the vicinity of a private airstrip and thus, would cause no harm to people residing or working in the project area, therefore, no impacts exist.

g) Proposed project-related activities would occur within the boundaries of the TRNERR and could restrict access to or block Monument Road. Currently, Monument Road is closed to the public during weekdays. However, any work occurring on the weekends could potentially block parts of the road. Minor detours to avoid congestion along Monument Road would be enacted, but most areas within BFSP and TRNERR would remain open to the public during the project. Minimum access requirements for emergency vehicles would be maintained at all times. The impact of the proposed project on emergency response or evacuation plans would be less than significant.

h) The vegetation bordering the proposed project site contains significant amounts of annual grasses that are highly flammable during the dry season (June through October). Heavy equipment can get very hot with prolonged usage, particularly during warmer days. This equipment would sometimes be in close proximity to potentially flammable vegetation. Sparks could generate from improperly outfitted exhaust systems or friction between metal parks crushing rocks. The proposed project would not add any new uses that could create additional long-term or permanent increased fire risks. However, because the proposed project would commence at the end of the dry season, precautions would still be implemented to reduce risk. The following mitigation measures would reduce the potential for adverse impacts from this project to a less than significant level:

MITIGATION MEASURE HAZMAT-3 - FIRE PREVENTION

- A safety plan shall be developed and reviewed by all project staff prior to the start of any work, including measures to reduce fire hazards;
- Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers shall be required for all heavy equipment;
- Work crews shall be required to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment shall be parked over mineral soil, asphalt, or concrete to reduce the chance of fire; and
- Park staff shall be required to have a State Park radio on-site, which would allow for direct contact to the California Department of Forestry and Fire Protection (CAL FIRE) and centralized dispatch center, to facilitate the rapid dispatch of control crews and equipment in case of a fire. Fire suppression equipment (i.e., fire extinguishers) shall also be available on park grounds.

VIII. HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL SETTING

The proposed project area lies at the mouth of the Tijuana River where it meets the Pacific Ocean. Surface water temperatures for coastal waters between the Mexican border and Point Loma, California, range from 57°F to 66°F. Dissolved oxygen at the surface ranges from 6.5 milligrams per liter (mg/L) to 10.0 mg/L, and decreases to less than 5.0 mg/L at 200 feet below the surface. During winter months, the water column is well-mixed with little stratification (USACE 1995).

The Tijuana River is an ephemeral stream draining a 1,700 square-mile watershed, 73 percent of which lies in Mexico (CDPR et al. 2007). Annual precipitation varies from less than 27.9 cm to 63.5 cm farther inland near the Laguna Mountains. Tidal circulation between the Pacific Ocean and the estuary is regular and the slough mouth has remained open since 1984, when the mouth closed and dredging was required to effectuate reopening. Generally, the northwestern part of the TRNERR is considered to be healthier than the southern or eastern regions because of better tidal exchange and increased exposure of mud flats at low tide. In the southern end, channel banks are steep, tidal flushing is restricted, and low elevation communities are rare (CDPR et al. 2007).

In the last 30 years, urban development within the Mexican portions of the Goat Canyon Creek Watershed (encompassing 91 percent of the total creek area) has led to a dramatic increase in water and sediment runoff to the Goat Canyon alluvial fan and Tijuana Estuary (Tierra Environmental Services, Inc. 2001). Increased Border Patrol activities in the vicinity have resulted in a network of graded dirt roads, which function as default creek beds during rainfall events, increasing sediment flows and contributing to water quality degradation and habitat loss in the TRNERR. Furthermore, Monument Road becomes a “path of least resistance” for water flow, which results in the flow of water, sediment and debris into marsh areas. Approximately 1,298,200 m^3/yr (1050 ac-ft/yr) of sediment- loading occurs over a drainage area of 1,725 square miles within the Tijuana River Watershed (Tierra Environmental Services, Inc. 2001). This massive sediment-loading results in marsh loss and is a major threat to the health of the estuary, its habitats, and ongoing restoration efforts (CDRP et al. 2007; CDRP 2002).

Beach closures due to bacterial contamination caused by wastewater flows through the Tijuana Estuary have been a major historical problem along the Border Field Shoreline (USACE 1995). Prior to 1991, approximately 13 million gallons per day (mgd) of untreated wastewater flowed into the Tijuana River and concrete flood control channel in Mexico via gullies and storm drains, which then flowed into the U.S. and the Tijuana Estuary. The results of an IBWC water quality study in 1990 found that more than 900 lbs of lead and more than 290 lbs of cyanide enter the Tijuana River annually (Tierra Environmental Services Inc. 2001). There is little published data available regarding the retention rates of such pollutants in the Tijuana Estuary (Nezlin et al. 2007).

In 1991, a low-flow sewage diversion was installed at the international border and in 1999, the IBWC installed the SBIWTP and the South Bay Ocean Outfall (SBOO) to treat sewage generated in Tijuana and water diverted from the Tijuana River. These flows are treated to an advanced primary level before discharge to the Pacific Ocean via the 4.5-mile long SBOO (Tierra Environmental Services Inc. 2001; CDPR 2002). However, despite these major upgrades to sewage treatment facilities resulting in dramatic improvements to water quality, rainfall events intermittently cause flows to exceed the SBIWTP’s capacity of 25 mgd, flowing into the TRNERR (CDPR 2002). Although vastly improved since construction of the SBIWTP, there have still been beach closures and poor water quality ratings as recent as November 2007 associated with the beach at the Tijuana River mouth (Heal the Bay 2007).

Stormwater runoff turbidity plumes are extensive throughout the Southern California Bight nearshore zone and persist for at least 3 days after storm events, according to one study (Nezlin et al. 2007). The spatial and temporal extent of the contaminated portions of plumes are far less than the total area of the plume (typically representing 30 to 70 percent in Tijuana) with contaminants generally greatly reduced or completely absent by the third or fourth day after the storm (Nezlin et al. 2007). Dinoflagellate blooms known as red tides occasionally occur at Imperial Beach, but the San Diego County Environmental Health Services does not close the beaches during such events (USACE 1995). Other urban discharges into the Tijuana River include trash and unknown quantities of detergents, oils, fertilizers, and pesticides, adversely affecting water quality (CDPR et al. 2007). Despite the history of uncontrolled releases of raw sewage and intensive industrial development over the past two decades in the Tijuana River watershed, metal loading to the estuary has not significantly increased during this period, possibly reflecting the recent progress of pollution prevention activities that counterbalance the rapid industrialization of the Mexican portion of the watershed (Weis et al. 2001).

Most groundwater in the Tijuana River Valley occurs in the alluvial fill that underlies the river valley – an unconfined aquifer with the potential to store 65,000 ac-ft of water. The aquifer is recharged primarily by direct rainfall, surface inflow from neighboring areas, and intermittent flood events. The demand for Tijuana River Valley groundwater has declined due to increased reliance on imported irrigation water, reduced pumping due to degraded water quality, and abandonment of farming activities. In response to increasing concern about the presence of heavy metals in sediments within the reserve, the USACE sampled groundwater for water quality and sediments and found measurable levels of gross alpha and beta radiation and sea urchins that tested for positive toxicity during chronic toxicity tests (CDPR 2002).

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☒	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

		POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
f)	Substantially degrade water quality?	☐	☒	☐	☐
g)	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place structures that would impede or redirect flood flows within a 100-year flood hazard area?	☐	☐	☐	☒
i)	Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam?	☐	☐	☐	☒
j)	Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

DISCUSSION

a) The proposed project would use sediment obtained from the Goat Canyon sediment basins and deposit it onto the beach area south of the Tijuana River mouth. Deposition of contaminated sediment could violate water quality standards and create significant adverse impacts. Implementation of **MITIGATION MEASURE HAZMAT-1** combined with the following mitigation measure would ensure no contaminated sediment would be deposited and reduce impacts to less than significant:

MITIGATION MEASURE WATER QUAL-1
▪ Sediment shall be screened to remove trash during the sorting process; ▪ Sediment shall be tested for fecal coliform bacteria and treated through aeration and UV exposure as necessary prior to use; ▪ Sediment shall be tested for contaminants such as heavy metals and petroleum distillates prior to transport to beach; and ▪ If contamination is detected, sediments shall not be deposited on the beach unless contamination can be removed or treated to acceptable levels.

b) The proposed project would not substantially or permanently affect groundwater levels, therefore there are no impacts.

c) The proposed project would not substantially alter the existing drainage pattern of the site or area. Potential erosion from the use of the horse trail road when saturated during rain events would be reduced to less than significant with the implementation of **MITIGATION MEASURE GEO-1.**

d) See VIII-c discussion above. The proposed project would not alter drainage patterns, and therefore could not result in on- or offsite flooding. If measures are taken to prevent erosion and sedimentation, flooding would also be prevented with the implementation of the above **MITIGATION MEASURE WATER QUAL-1**.

e) The proposed project would not create or contribute runoff water nor add polluted runoff to the system; therefore, no impacts exist.

f) The proposed movement of fine-grained sediment into the surf zone could increase turbidity for several days (outside of storm events) with associated effects on water quality. However, the proposed sediment deposition area is a naturally turbid, well-mixed surf zone and nearshore bottom waters are also commonly turbid; therefore, impacts would be adverse, but not significant, short-

term increases in turbidity. Deposition of contaminated sediment could create significant adverse impacts to water quality, but with the implementation of **MITIGATION MEASURE WATER QUAL-1,** impacts would be reduced to less than significant.

g) The proposed project does not include housing construction; therefore, no impacts exist.

h) The proposed project does not include the construction of any structures within the 100-year flood plain; therefore, no impacts exist.

i) While the Rodriguez Dam in Mexico has overflowed and caused flooding in locations near the project area in the past, the proposed project would not impact these conditions. Construction is not expected to occur during heavy rain events, when flooding would most likely occur, and would not include construction of any structures; therefore, no impacts exist.

j) Because the proposed project area lies at the Pacific Ocean, there is a remote, but unlikely, chance that the proposed project area could be affected by seiche or tsunamis. However, the proposed project would not change the likelihood of either event, nor would it increase exposure of new residents or business to such hazards; therefore, no impacts exist.

IX. LAND USE AND PLANNING

ENVIRONMENTAL SETTING

The proposed project area is located within the California Coastal Zone. The current Tijuana River Valley Local Coastal Plan/Land Use Plan was adopted by the City of San Diego and certified by the California Coastal Commission in 1999. The majority of the planning area (2970 acres) is designated for long-term natural open space. A total of 434 acres are designated for other community open space/agricultural use. The only other plan designations reflect existing military and utility uses. Zoning within the TRNERR Comprehensive Management Plan further delineates five resource use zones: Endangered Species Protection/Preservation Zone (ESZ), Wetland/Wildlife Conservation Zone (WCZ), Wildlife Orientation/Interpretation Zone (WOZ), General Recreation Zone (GRZ), and the Ecological Buffer Zone (EBZ). The proposed project would overlap several zones.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☒	☐	☐

DISCUSSION

a) The proposed project would not divide an established community because none exist within the boundaries of BFSP, TSNWR, or the entire TRNERR; therefore, there would be no impact.

b) The proposed project is consistent with all applicable state and local land use plans, policies, and regulations. While there would be some periodic disruptions to public access and use of the coast along BFSP, with the implementation of **MITIGATION MEASURE REC-1**, impacts would be reduced to a less than significant level. With certification of this Mitigated Negative Declaration, the project would be in all compliance with CEQA.

c) As a research project with potential benefits to beach nourishment and with the inclusion of appropriate mitigation resource protection measures, the proposed project is consistent with the goals of the National Oceanic and Atmospheric Association's Coastal Zone Management Act, the Tijuana River Valley Local Coastal Program Land Use Plan, the BFSP General Plan (January 1974, amended January 1987), City of San Diego Progress Guide and General Plan (Open Space Element and Recreation Element), Multiple Species Conservation Program's Multiple Habitat Planning Area, and the TRNERR Comprehensive Management Plan 2007. Habitat disturbances would be minimal and short-term and would be reduced to less than significant with the implementation of **MITIGATION MEASURE BIO-1, MITIGATION MEASURE GEO-1,** and **MITIGATION MEASURE WATER QUAL-1**.

X. MINERAL RESOURCES

ENVIRONMENTAL SETTING

All activities associated with the proposed project would occur within the boundaries of the TRNERR. No significant mineral resources have been identified within the TRNERR.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

DISCUSSION

a) No known mineral resources of local or regional importance have been identified in the park by the Mineral Land Classification Program, administered by the California Department of Mines and Geology; therefore, no loss of mineral resources would occur as a result of the proposed project so there would be no impact.

b) The proposed project site is not classified or nominated as a locally important mineral resource recovery site; therefore, the proposed project would have no impact.

XI. NOISE

ENVIRONMENTAL SETTING

Noise sources in the TRNERR include vehicle traffic along Monument Road, nearby roads in Mexico, and military helicopter training operations conducted at the Imperial Beach Naval Outlying Field to the north. Noise levels were observed and measured in December 2000 in the mid-morning hours. In the vicinity of the SBIWTP, helicopter noise occurred for most of the measurement period. Helicopter noise levels were generally in the 55-65 decibel (dBA) range. Average noise levels during previous studies were 61 dBA (Tierra Environmental Services Inc. 2001).

Sensitive noise receptors within the project include common and rare wildlife, such as certain threatened and endangered species (see Section IV *Biological Resources*). This is especially true during avian breeding seasons, which typically fall between March and September. Recreational users including equestrians, bird watchers and beach goers, as well as residents along the Mexican side of the border are also considered sensitive receptors for potential noise impacts.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☒	☐	☐
b) Generate or expose people to excessive groundborne vibrations or groundborne noise levels?	☐	☐	☒	☐
c) Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project)?	☐	☐	☐	☒
d) Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project?	☐	☒	☐	☐
e) Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) Be in the vicinity of a private airstrip? If so, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

DISCUSSION

a) The proposed project would periodically generate noise levels in excess of established standards and expose people to these increased noise levels. Construction-generated noise would have a potentially short-term impact to nearby noise-sensitive receptors (e.g., park visitors, birds). Speech interference near the project site and a potential increase in annoyance to visitors in other areas of the park may be experienced. However, impacts to visitors would be minimized since the majority of construction activities would take place during weekday periods when Monument Road is closed, and construction would likely occur over only four to six weekends when BFSP is open to the public. The following mitigation measure would bring impacts from increased noise levels to a less than significant level:

MITIGATION MEASURE NOISE-1
▪ Construction activities would generally be limited to daylight hours. No work shall take place on holidays. Work should be avoided on holiday weekends (e.g., Thanksgiving, Christmas, New Years); ▪ Internal combustion engines used on the project site would be equipped with a muffler type recommended by the manufacturer. Equipment and trucks should utilize the best available noise-control techniques (e.g., engine enclosures, shrouds, intake silencers, ducts, etc.) whenever feasible and necessary; and ▪ Truck speed shall be regulated to less than 25 mph (15 mph on the horse trail road per **MITIGATION MEASURE AIR-1**) to reduce noise levels and protect public safety.

b) The proposed project would not involve the use of explosives, pile driving, or other intensive construction techniques that generate significant ground vibrations and/or noise. Minor vibrations along truck haul routes would be less than significant.

c) The proposed project would not result in permanent increases in ambient noise levels in the area. Upon project completion, all construction noise would cease and no residual noise-generating equipment would be present; therefore, no impact exists.

d) See XI-a discussion above. Temporary, periodic increases in ambient noise levels in the proposed project vicinity would be less than significant due to their short term duration. Implementation of **MITIGATION MEASURE NOISE-1** would further reduce impacts. The proposed project is scheduled to occur between October 2008 and February 2009, so increases in noise would not occur during the breeding season of local birds and would not have a significant impact. Per **MITIGATION MEASURE BIO-1**, a 400-yard buffer zone south of the Tijuana River mouth shall be incorporated into the project design to minimize impacts to over-wintering western snowy plover populations.

e,f) The proposed project area is not located within a private airport land-use plan or within 2 miles of a public airport or public-use airport, and is more than 2 miles from the Imperial Beach Naval Outlying Landing Field. Although periodic helicopter flights do occur overhead, workers would already be exposed to higher noise levels from construction equipment; therefore, no impact exists.

XII. POPULATION AND HOUSING

ENVIRONMENTAL SETTING

The proposed project site is located in the most southwest portion of San Diego County, easily accessible to the county's 2.9 million residents. The proposed project is located within the TRNERR immediately adjacent to the City of Imperial Beach and its 27,000 residents and southwest of Chula Vista's 173,000 residents. The City of San Diego communities of Nestor, Otay Mesa, and San Ysidro are also located within several miles of the project, and are home to approximately 100,000 people. The population within these areas of San Diego has increased by about 10% from 1990 to 2000. The residential areas near the project are older, built-out communities undergoing moderate renovations, which increases the number of persons per household.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION

a) Work proposed by this project would not induce substantial population growth in the area because it is a short-term construction project. Work would occur within the boundaries of the TRNERR, with no additions or changes to the existing local infrastructure; therefore, the proposed project would have no impact on population growth in the area.

b) As noted in the XII-a discussion above, the project would have no housing component and would neither modify nor displace any existing housing; therefore, no impact exists.

c) As noted in the XII-a discussion above, the project would have no housing component and would not displace anyone temporarily or permanently, and would not require the construction of replacement housing; therefore, no impact exists.

XIII. PUBLIC SERVICES

ENVIRONMENTAL SETTING

The TRNERR is managed by a 12-member Management Authority including: (1) CDPR; (2) USFWS; (3) CCC; (4) SCC; (5) U.S. Border Patrol; (6) USN; (7) County of San Diego; (8) City of San Diego; (9) City of Imperial Beach; (10) National Oceanic and Atmospheric Administration; (11) San Diego State University; and (12) Southwest Wetlands Interpretive Association. The USFWS operates the TSNWR and has offices at the TRNERR. The County and City of San Diego also own and administer land within the Reserve. County lands are part of the San Diego County Parks System. City lands are currently operated and maintained by the County Park System under a City/County Memorandum of Understanding. Agents of the U.S. Border Patrol operate throughout the entire Reserve. The IBWC operates several facilities within the valley, including the SBIWTP. The cities of Imperial Beach and San Diego, along with the California Department of Forestry, provide assistance with wildfires. The U.S. Border Patrol, San Diego County Sheriff's Department, and the San Diego Police Department all provide law enforcement backup on request. The Fire Departments of the cities of San Diego and Imperial Beach are the main responders in medical emergencies, depending on the location of the emergency.

WOULD THE PROJECT:

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
a) Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☒	☐	☐
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

DISCUSSION

a) The level of required services for the proposed project is expected to remain relatively static. Nonetheless, as noted in VII-g Hazards, the use of heavy equipment near flammable vegetation presents a slightly increased fire risk that could result in additional demands on local and CAL FIRE fire response teams. Given primary vegetation types in the vicinity and the project's late fall-winter timing, such hazards are minimal. Any impact on services would be temporary and nothing in the project scope would contribute to the need for an increased level of public services. Implementation of **MITIGATION MEASURE HAZMAT-3**, along with readily available on-site fire suppression equipment (i.e., fire extinguishers) and support from State Park personnel would reduce the potential impact to fire protection services to a less than significant level.

XIV. RECREATION

ENVIRONMENTAL SETTING

The TRNERR offers various recreational opportunities to the general public and receives over 80,000 visitors per year. Recreational activities include, but are not limited to: horseback riding, hiking, biking, picnicking, beach activities such as sun-bathing, swimming, surfing, bird-watching, sightseeing, solitude and recreation, and participation in interpretive and educational programs. Monument Mesa, located in BFSP at the far southwest corner of TRNERR, has a large picnic area and provides scenic views and parking. The Reserve offers 4 miles of trails, taking visitors into prime bird watching areas and to the mouth of the Tijuana River. Equestrian trails such as the horse trail road are available on the south end of the Reserve, and horses can be rented from nearby stables (Tierra Environmental Services Inc. 2001).

Primary recreational access to the project area and BFSP is provided by Monument Road. Due to funding restrictions, Monument Road is currently open to public vehicles only on weekends. Pedestrians and equestrians are permitted to use the park during the week. Secondary public access to the project area is via a system of horse trails which link BFSP and Border Field State Beach to the Tijuana River Valley County Park to the east and horse boarding and rental facilities along Sunset Avenue. Additional public access to the project area occurs via beach access facilities in south Imperial Beach, approximately 1 mile north of the proposed beach sediment deposition areas. Beach walkers, surfers, horseback riders, hikers and bird watchers all use these facilities to access the area.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒
c) Significantly interfere with or impair existing recreational uses or activities?	☐	☒	☐	☐

DISCUSSION

a) The project would not increase demand for recreation facilities. The TRNERR and BFSP will continue to receive the same level and type of recreational usage it currently receives upon the completion of the proposed project; therefore, there is no impact.

b) The proposed project would not utilize existing or require new recreational facilities; therefore, there is no impact.

c) The proposed project could interfere with or degrade the recreational experience for users of the BFSP and TRNERR for intermittent periods during the three to four month construction period. Such degradation would be confined primarily to non-holiday weekends during the fall and winter months when construction could coincide with peak visitor-use periods and when Monument Road is open to provide access to BFSP and Border Field State Beach. However, lower levels of weekday use could also be impacted. In general, impacts would include the following:

- The potential for interruption or closure of Monument Road or the horse trail road when in use by heavy equipment (e.g., haul trucks). Although the proposed project does not include long-term closure of these roads, at a minimum, vehicular access may be interrupted by flagmen along Monument Road. In addition, during periods of sediment transport, it would be impractical or potentially unsafe for equestrians, hikers, beach-goers etc. to use the horse trail road to access Border Field State Beach. The horse trail road would subsequently be temporarily closed during such periods;
- The potential for disruption of beach access along one mile of beach between Monument Road and the area south of the slough mouth during periods of sediment hauling and deposition activity. While the project does not propose overall closure of the beach during these periods, equestrian activity would be limited and disrupted due to safety issues associated with horses shying from heavy equipment. Flaggers or other monitors would also be empowered to turn the public away during periods of high or unsafe activity;
- Increased noise, dust, and emissions from heavy equipment would disrupt the enjoyment of recreational users of this relatively tranquil and normally quiet area; and
- Increased turbidity in the ocean environment that could affect ocean-goers, such as surfers, swimmers, kayakers, SCUBA divers, etc.

Although the TRNERR and BFSP are highly valued recreational areas, these impacts would be considered adverse, but not significant for the following reasons:

- The project would be of relatively short duration (three to four months), with the majority of construction occurring during weekday periods of low public use, with recreational use disrupted only over non-holiday weekends during late fall and winter;
- Alternate trail access would be available throughout TRNERR and in the County's Tijuana River Valley Regional Park;
- Alternative access to Border Field State Beach would continue to be available from Imperial Beach to the north;
- Construction would be prohibited during holiday weekends; and
- Sediments deposited in the ocean environment will be deposited in three phases and are expected to disperse quickly based on their volume. Per **MITIGATION MEASURE HAZMAT-1,** all sediments shall be screened for contaminates and no contaminated sediments shall be deposited, minimizing impacts to recreational users.

In addition, the project would include notification of the public about schedule closures and alternative access points as discussed in the following mitigation measure:

MITIGATION MEASURE REC-1
▪ CDPR should post notices at key access points in the TRNERR that detail the proposed project's construction schedule, including the timing and duration of planned road or trail closures, and include a map of alternative beach access points and trails which would remain open to the public; ▪ CDPR should post a larger visible sign along Monument Road east of the project area warning the public of ongoing construction activities and likely disruption of recreational access off of Monument Road; ▪ CDPR Visitor Center staff should be informed of the project and briefed to direct the public to other trail and beach access points; ▪ CDPR should provide notice of the project on its website; ▪ All sediment hauling and beach area construction activities shall be prohibited on holiday weekends (i.e., Thanksgiving, Christmas, New Year's); and ▪ Monument Road should remain open to BFSP overlook; a flagger should be provided as needed to ensure safe public access to this facility.

XV. TRANSPORTATION/TRAFFIC

ENVIRONMENTAL SETTING

Regional access to the proposed project area is by way of Interstate 5, to Dairy Mart Road and then to Monument Road. Both Dairy Mart Road and Monument Road are 2-lane collectors which carry low traffic volumes and operate at an acceptable Level of Service. Monument Road between the sediment basins and the beach is paved and receives light traffic. The horse trail road is a narrow, dirt road on which unauthorized motor vehicles are prohibited. The majority of the existing traffic within the park stems from Border Patrol agents.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Cause a substantial increase in traffic, in relation to existing traffic and the capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☒	☐	☐
b) Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☒
d) Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative turnouts, transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

DISCUSSION

a) A significant increase in visitation to the TRNERR would not occur as a result of the proposed project. All project activities would be confined within the boundaries of the park and would not severely restrict access to or block any major public road. While traffic on Monument Road would be interrupted, access to the BFSP Overlook would continue to be permitted under the control of a flagger. The addition of worker vehicles entering and leaving during daylight hours would not constitute a substantial or long-term increase in traffic volume or congestion at the park entrances, nor restrict the public's access to their property. Temporary, intermittent interruption of traffic flow may occur within BFSP along Monument Road, the horse trail road, and along the beach south of the Tijuana Slough, due to trucks hauling and depositing sediment. Along with storing most heavy equipment on park property for the duration of the project, the mitigation measure below would help reduce impacts to less than significant:

MITIGATION MEASURE TRANS/TRAFF-1
▪ Notice posting project hours of operation and duration, along with a map of the aerial extent of activities and potential access closures shall be posted at all beach and trail access points leading into the project vicinity; ▪ Project traffic control monitors shall be posted at the north and south ends of the beach with the authority to turn beach users away during periods of high activity. However, reasonable attempts shall be made to keep as much of the project area open to access as is deemed safe during project implementation; and ▪ Traffic control and alternate access route information shall be provided, including alternate horse trails. Where equestrian trails must cross truck haul routes, traffic control would be provided to ensure safety to horses and riders.

b) Per XV-a discussion above, the impact on congestion resulting from project-generated vehicles on normal traffic on Interstate 5 or surface roads would be minimal and have no impact on the acceptable Level of Service for this area.

c) The proposed project would not cause any changes in air traffic patterns because it is not located within 2 miles of a public airport, public-use airport or private airport land-use plan. The Imperial Beach Naval Outlying Landing Field lies on the eastern boundary of the Reserve, but the proposed project site is over 2 miles away. No impact would occur to existing air traffic patterns in the area as a result of the proposed project.

d) As noted in XV-a discussion above, all activities associated with the project would occur within the boundaries of the TRNERR and work would not contain a design feature that would substantially increase hazards; therefore, no impact exists.

e) Work associated with the proposed project would not substantially restrict access to or block any public road during the weekday. Work on the weekend would coincide with open public access to Monument Road, which may cause traffic interruption. Detours would be implemented if necessary. Most areas within the park would remain open to the public during project activities, with intermittent and temporary detours per **MITIGATION MEASURE TRANS/TRAFF-1**. With the implementation of this mitigation measure, impacts to emergency access would be reduced to less than significant.

f) Project activities would generate a temporary demand for construction worker vehicle parking. This parking demand would not be substantial and would likely be accommodated in the staging/sorting area and at park administration or maintenance facilities. There would be no impact on parking capacity emanating from the proposed project.

g) There are no policies, plans, or programs supporting alternative transportation that apply to the proposed project area; therefore, there would be no impact.

XVI. UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL SETTING

The IBWC currently operates the SBIWTP within the TRNERR. San Diego City Water District provides potable water. San Diego Gas and Electric provides electricity. Pacific Bell provides telephone services. The Reserve does not use natural gas.

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?	☐	☐	☐	☒
Would the construction of these facilities cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities?	☐	☐	☐	☒
Would the construction of these facilities cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has adequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations as they relate to solid waste?	☐	☐	☐	☒

DISCUSSION

a) The TRNERR is within jurisdiction of the San Diego RWQCB. The project would be in compliance with all applicable water quality standards and waste discharge requirements (see **MITIGATION MEASURE HAZMAT-1** regarding potential impacts from accidents, spills, or upsets). The proposed project would not affect wastewater treatment restrictions or standards; therefore, no impact exists.

b) The proposed project contains no elements that would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities; therefore, no impact exists.

c) No new storm water drainage facilities or expansion of existing facilities would be part of the proposed project; therefore, no impact exists.

d) The proposed project would not require new or expanded water supply entitlements. Current supplies are adequate for existing demands, additional demands associated with the proposed project, and projected future use; therefore, the proposed project would have no impact on water supplies.

e) The proposed project would not affect the capacity of the wastewater treatment provider in any way; therefore, no impact exists.

f) The proposed project would not increase the area's solid waste disposal needs over existing uses; therefore, no impact exists.

g) The proposed project would comply with federal, state, and local statutes and regulations pertaining to solid waste; therefore, no impact exists.

CHAPTER 4
MANDATORY FINDINGS OF SIGNIFICANCE

	POTENTIALLY SIGNIFICANT IMPACT	LESS THAN SIGNIFICANT WITH MITIGATION	LESS THAN SIGNIFICANT IMPACT	NO IMPACT
WOULD THE PROJECT:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal?	☐	☒	☐	☐
b) Have the potential to eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
c) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, other current projects, and probably future projects?)	☐	☐	☐	☒
d) Have environmental effects that will cause substantial adverse effects on humans, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION

a) Potentially significant adverse impacts to the natural environment resulting from the proposed project and related activities were evaluated. The proposed project would involve activities in and near sensitive habitats that contain a diverse array of wildlife species, including some endangered, threatened, and rare species. With full implementation of all the aforementioned mitigation measures, potential project-related impacts would be reduced to a less than significant level.

b) The proposed project could potentially to affect important prehistoric and historic examples of California history; however, with the implementation of the previously mentioned mitigation measure, impacts to important examples of California's history would be reduced to less than significant.

c) Because the mission of the CDPR as it pertains to the TRNERR is to "protect and preserve the natural resources of the area, while making them available for public enjoyment," there are numerous ongoing maintenance and restoration projects at any given time. No additional projects other than routine maintenance are planned for the proposed project area in the foreseeable future. Impacts from other known projects do not overlap with potential impacts from the proposed project; therefore, no impact exists.

d) Environmental effects from the proposed project would generally not have substantial adverse effects on humans. However, possible impacts from construction accidents, noise, and other safety hazards do exist. With the incorporation and implementation of the proposed mitigation measures, impacts to humans from the proposed project would be reduced to less than significant.

CHAPTER 5
SUMMARY OF MITIGATION MEASURES

The following mitigation measures would be implemented by CDPR as part of the Science Study:

AIR QUALITY

MITIGATION MEASURE AIR-1

- Work areas, including stockpiled sediments, shall be wet down regularly;
- Traffic speed on the unpaved horse trail road shall be limited to 15 miles per hour; and
- All equipment engines shall be maintained in good condition, in proper tune (per manufacturer's specifications), and in compliance with all State and Federal requirements.

BIOLOGICAL RESOURCES

MITIGATION MEASURE BIO-1

- A minimum 400-yard buffer zone south of the slough mouth shall be incorporated into the project design to minimize impacts to the over-wintering population of snowy plover. This buffer shall be staked and delineated with signs; all vehicle traffic and primary construction activities shall be prohibited from this area;
- The project shall utilize a project monitor and qualified western snowy plover biologist to ensure compliance with the above measure and to monitor plover behavior. The monitor, in consultation with the CDPR, shall have the authority to suspend work as needed or increase the required buffer to up to 600 yards south of the slough mouth to protect the plover;
- All heavy equipment operation shall be prohibited from the dunes and beach berm, except where the horse trail road and Monument Road enter the beach, where steel grating plates shall be employed at dune crossing points. All construction activity would be precluded from the beach berm which would be staked and signed "no vehicle entry" and enforced by project monitors.
- Monument Road would be used as the wet-weather truck haul route; and
- The horse trail road would be used only during dry weather conditions and regular monitoring and/or implementation of sediment control measures (see **MITIGATION MEASURE GEO-1**) would be required to ensure erosion is minimized.

CULTURAL RESOURCES

MITIGATION MEASURE CULTURAL-1

- A historic study, including a map and literature review, in order to define the precise location of the remains and foundations of historic WW-II buildings that lie beneath and around Monument Road shall be completed;
- Archaeological testing to identify building foundation edges, confirm mapped building locations and current elevation for remains of those historic structures in close proximity to or underlying Monument Road that have the potential to be affected by compression or compaction from heavy vehicle use or by any road repairs/improvements deemed necessary for successful implementation of the proposed project shall be undertaken;
- An engineering review of the structural adequacy of Monument Road to (1) accommodate heavy haul equipment, (2) the estimated potential for such haul traffic to cause substantial damage to the road, (3) identify any possibility of subsurface compaction or compression below the road grade, (4) recommendations for any road improvements that would be necessary to prevent damage to the road and those resources beneath the road, and (5) determination of any road improvements needed to accommodate the project and/or return the road to its pre-project state shall occur; and
- If road improvements or upgrades are required, an archaeological monitor shall be present during all road repair/construction activities and empowered to stop work or direct other modifications as needed to protect cultural remains.

GEOLOGY AND SOILS

MITIGATION MEASURE GEO-1

- The horse trail road would not be used during rain events. Additionally, the road would be monitored and any necessary erosion control measures would be implemented to prevent erosion and sedimentation to the surrounding marsh areas. At the discretion of the project monitor and State Park personnel, erosion control measures may include limited use of gravel within the existing road bed and installation of silt fencing and straw waddle and/or other sediment-retention measures along the edges of the road. The road would be restored to its existing condition upon cessation of the proposed project.

HAZARDS AND HAZARDOUS MATERIALS

MITIGATION MEASURE HAZMAT-1

- All equipment shall be inspected for leaks immediately prior to the start of project activities, and regularly inspected henceforth until equipment is removed from the premises;
- The contractor(s) shall prepare an emergency spill response plan prior to the start of the project and maintain a spill kit on-site throughout the duration of the proposed project. The emergency plan shall include a map delineating staging areas, where refueling, lubrication, and maintenance of equipment may occur. In the event of a spill or release of any chemical during activities associated with the proposed project, on or adjacent to wetlands or on park property, the contractor shall immediately notify the appropriate CDPR staff (e.g., project manager or supervisor). Emergency containment procedures shall be initiated immediately to prevent wetland or beach contamination;
- Equipment shall be cleaned and repaired outside park boundaries, with the exception of emergency situations. All contaminated water, sludge, spill residue, or other hazardous compounds shall be disposed of outside park boundaries, at a permitted or authorized location; and
- All sediment being transported, sorted, and deposited shall be first screened, tested, and treated for trash, fecal coliform bacteria, heavy metals, petroleum distillates and any other contaminants. If treatment does not bring sediment to acceptable usable levels, sediment shall be disposed of at an approved disposal site.

MITIGATION MEASURE HAZMAT-2

- Sediment used for the proposed project shall be screened, tested, and treated; and
- Workers shall employ the following measures to minimize exposure to potential pathogens associated with untested sediment or that which was found to be contaminated and not approved of for disposal on beach:
  1. Wash hands regularly, especially before eating, drinking, smoking, or using the restroom
  2. Wear gloves
  3. Cover wounds with clean, dry bandages

MITIGATION MEASURE HAZMAT-3

- A safety plan shall be developed and reviewed by all project staff prior to the start of any work, including measures to reduce fire hazards;
- Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers shall be required for all heavy equipment;
- Work crews shall be required to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment shall be parked over mineral soil, asphalt, or concrete to reduce the chance of fire; and
- Park staff shall be required to have a State Park radio on-site, which would allow for direct contact to the California Department of Forestry and Fire Protection and centralized dispatch center, to facilitate the rapid dispatch of control crews and equipment in case of a fire. Fire suppression equipment (i.e., fire extinguishers) shall also be available on park grounds.

HYDROLOGY AND WATER QUALITY

MITIGATION MEASURE WATER QUAL-1

- Sediment shall be screened to remove trash during the sorting process;
- Sediment shall be tested for fecal coliform bacteria and treated through aeration and UV exposure as necessary prior to use;
- Sediment shall be tested for contaminants such as heavy metals and petroleum distillates prior to transport to beach; and
- If contamination is detected, sediments shall not be deposited on beach unless contamination can be removed or treated to acceptable levels.

NOISE

MITIGATION MEASURE NOISE-1

- Construction activities should generally be limited to daylight hours. No work shall take place on holidays. Work should be avoided on holiday weekends (e.g., Thanksgiving, Christmas, New Years);
- Internal combustion engines used on the project site would be equipped with a muffler type recommended by the manufacturer. Equipment and trucks should utilize the best available noise-control techniques (e.g., engine enclosures, shrouds, intake silencers, ducts, etc.) whenever feasible and necessary; and
- Truck speed shall be regulated to less than 25 mph (15 mph on the horse trail road per **MITIGATION MEASURE AIR -1**) to reduce noise levels and protect public safety.

RECREATION

MITIGATION MEASURE REC-1

- CDPR should post notices at key access points in the TRNERR that detail the proposed project's construction schedule, including the timing and duration of planned road or trail closures, and include a map of alternative beach access points and trails which would remain open to the public;
- CDPR should post a larger visible sign along Monument Road east of the project area warning the public of ongoing construction activities and likely disruption of recreational access off of Monument Road;
- CDPR Visitor Center staff should be informed of the project and briefed to direct the public to other trail and beach access points;
- CDPR should provide notice of the project on its website;
- All sediment hauling and beach area construction activities shall be prohibited on holiday weekends (i.e., Thanksgiving, Christmas, New Year's); and
- Monument Road should remain open to BFSP overlook; a flagger should be provided as needed to ensure safe public access to this facility.

TRANSPORTATION/TRAFFIC

MITIGATION MEASURE TRANS/TRAFF-1

- Notice of hours of project operation and duration, along with a map of the aerial extent of activities and potential access closures shall be posted at all beach and trail access points leading into the project vicinity;
- Project traffic control monitors shall be posted at the north and south ends of the beach with the authority to turn beach users away during periods of high activity. However, reasonable attempts shall be made to keep as much of the project area open to access as is deemed safe during project implementation; and
- Traffic control and alternate access route information shall be provided including alternate horse trails. Where equestrian trails must cross truck haul routes, traffic control would be provided to ensure safety to horses and riders.

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CHAPTER 7
REPORT PREPARATION

REPORT PREPARERS

AMEC Earth and Environmental, Inc.
Daniel Gira, Senior Program Manager
Ryan Binns, Environmental Planner
Jessica Rosen, Environmental Analyst
Katie London, Environmental Scientist
Deirdre Stites, Graphics Consultant
Yuying Li, GIS Analyst

REPORT REVIEWERS

AMEC Earth and Environmental, Inc.
Nicholas Buhbe, Senior Marine Scientist

California Department of Parks and Recreation
Clay Phillips, South Sector Superintendent and Reserve Manager
Christopher Peregrin, Stewardship Coordinator and Environmental Scientist
Tina Robinson, Park and Recreation Specialist
Therese Muranaka, Associate State Archaeologist

California Geological Survey
Clifton Davenport, Senior Engineering Geologist

Moffatt and Nichol
Christopher Webb, Senior Coastal Scientist
Anne-lise Lindquist, Coastal Engineer

State Coastal Conservancy
Megan Johnson, Project Manager

Tierra Environmental Services, Inc.
Christopher Nordby, Principal Biologist

Tijuana River National Estuarine Research Reserve
Jeffrey Crooks, Research Coordinator

OTHER CONTRIBUTORS

Southwest Wetlands Interpretative Association
Mayda Winter, Project Manager

U.S. Geological Survey
Jonathan Warrick, Research Geologist

U.S. Fish and Wildlife
Brian Collins, Wildlife Biologist

APPENDIX A

ACRONYMS

Attachment 1. Acronyms and Abbreviations

°F	degrees Fahrenheit
ac-ft	acre-feet
ALF	Auxiliary Landing Field
BFSP	Border Field State Park
EIR	Environmental Impact Report
CAL FIRE	California Department of Forestry and Fire Protection
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
cy	cubic yards
FAA	Federal Aviation Administration
IBWC	International Boundary and Water Commission
IS/MND	Initial Study/Mitigated Negative Declaration
LTO	landing and take-off
mg/L	milligrams per liter
mgd	million gallons per day
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SBIWTP	South Bay International Water Treatment Plant
SBOO	South Bay Ocean Outfall
SCC	California State Coastal Conservancy
Science Study	Tijuana Estuary Sediment Fate and Transport Study
SDAB	San Diego Air Basin
TRNERR	Tijuana River National Estuarine Research Reserve
TSNWR	Tijuana Slough National Wildlife Refuge
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife
USGS	U.S. Geological Survey
USN	U.S. Navy
WW-II	World War II