

TIJUANA ESTUARY SEDIMENT STUDY

PROJECT DESCRIPTION¹

1.1 INTRODUCTION

The California Department of Parks and Recreation (CDPR), in partnership with the California State Coastal Conservancy (SCC), the California Coastal Sediment Management Workgroup (CSMW)², the Tijuana River National Estuarine Research Reserve (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 **NOTE TO READER**-This Project Description is part of the Project's Mitigated Negative Declaration, and is presented separately herein solely for brevity. Accordingly, a referral to "Figure 1.x" actually means "Figure 2.x"

² CSMW is comprised of divisions and departments within the California Resources Agency and the USACE. For more information, visit <http://www.dbw.ca.gov/csmw/default.aspx>

1.2 PROJECT LOCATION

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



The Project area includes both the Tijuana Estuary and beach

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).

1.3 PURPOSE AND NEED

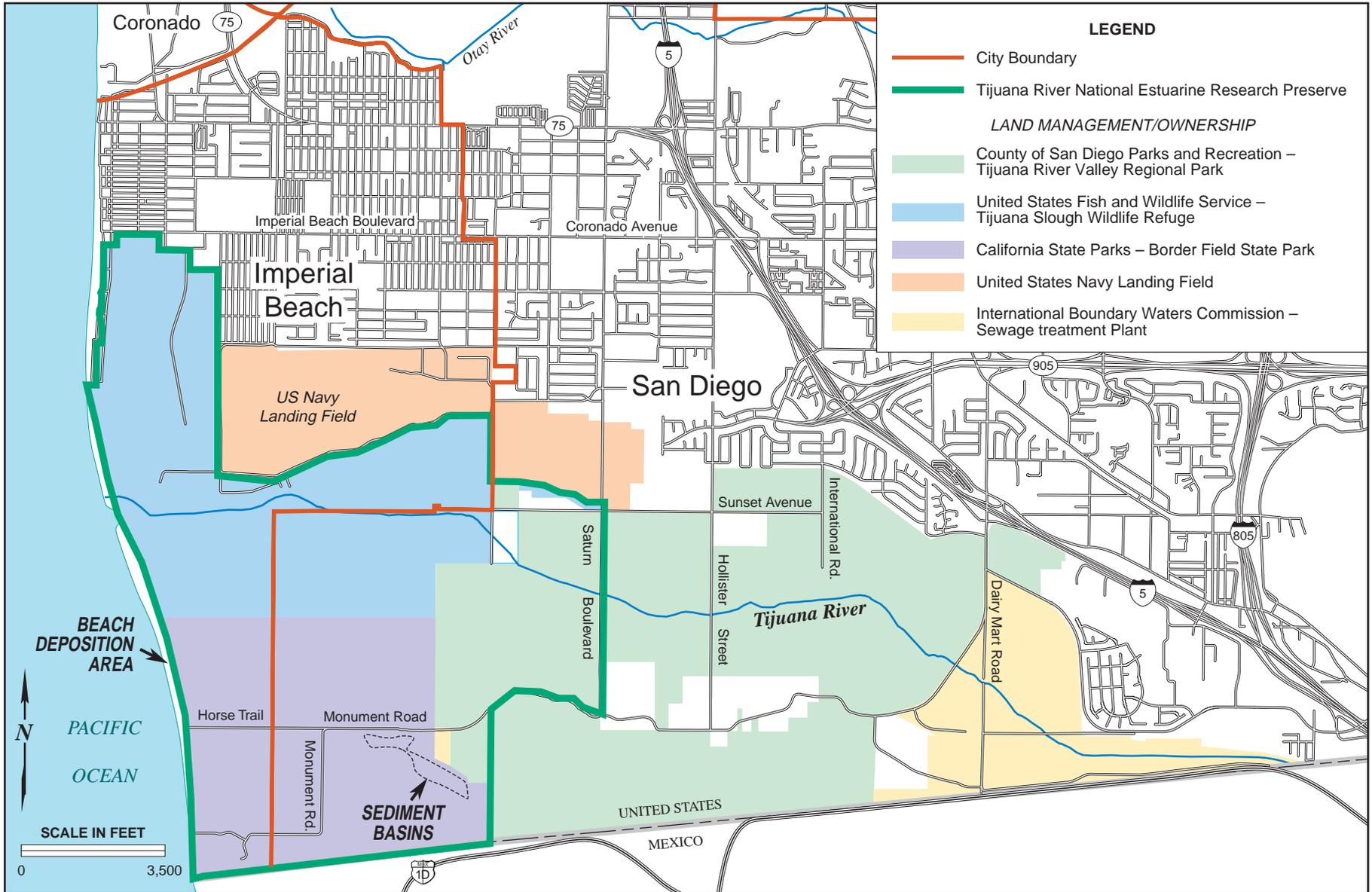
The proposed project is intended to provide scientific data regarding the transport and fate of fine-grained sediment within the Silver Strand littoral cell², provide an environmentally sound and economical approach toward future restoration activities within the TRNERR, and may also provide incidental 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

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.

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





Jurisdictional Boundaries – Management Responsibility
Tijuana River Estuary

FIGURE
2-2



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).

1.3.1 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

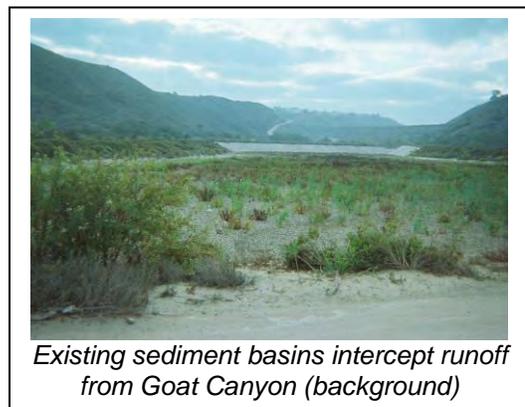
- environmentally-sound method of beneficial reuse and regional sediment management; and
- Provide incidental beach nourishment which may slow the retreat of the barrier beach and dune system that separates the TRNERR from the ocean.

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.

1.4 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 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.

1.5 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.

1.5.1 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.

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

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.

1.5.2 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

1.5.3 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.

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

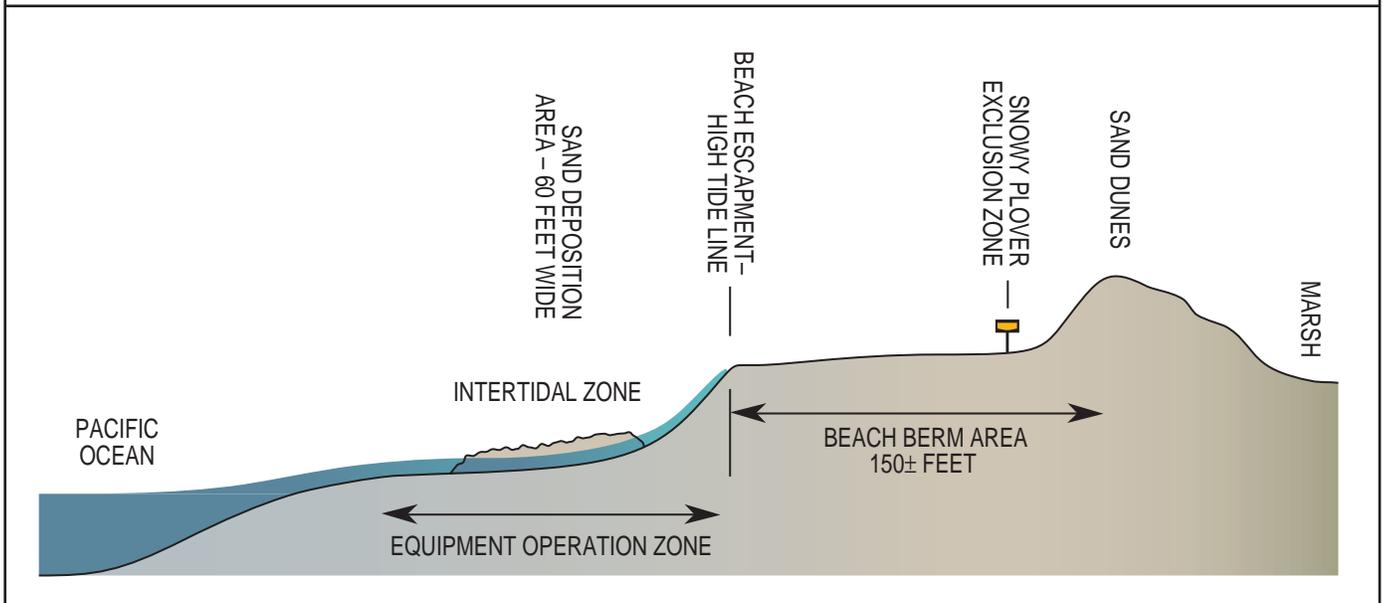
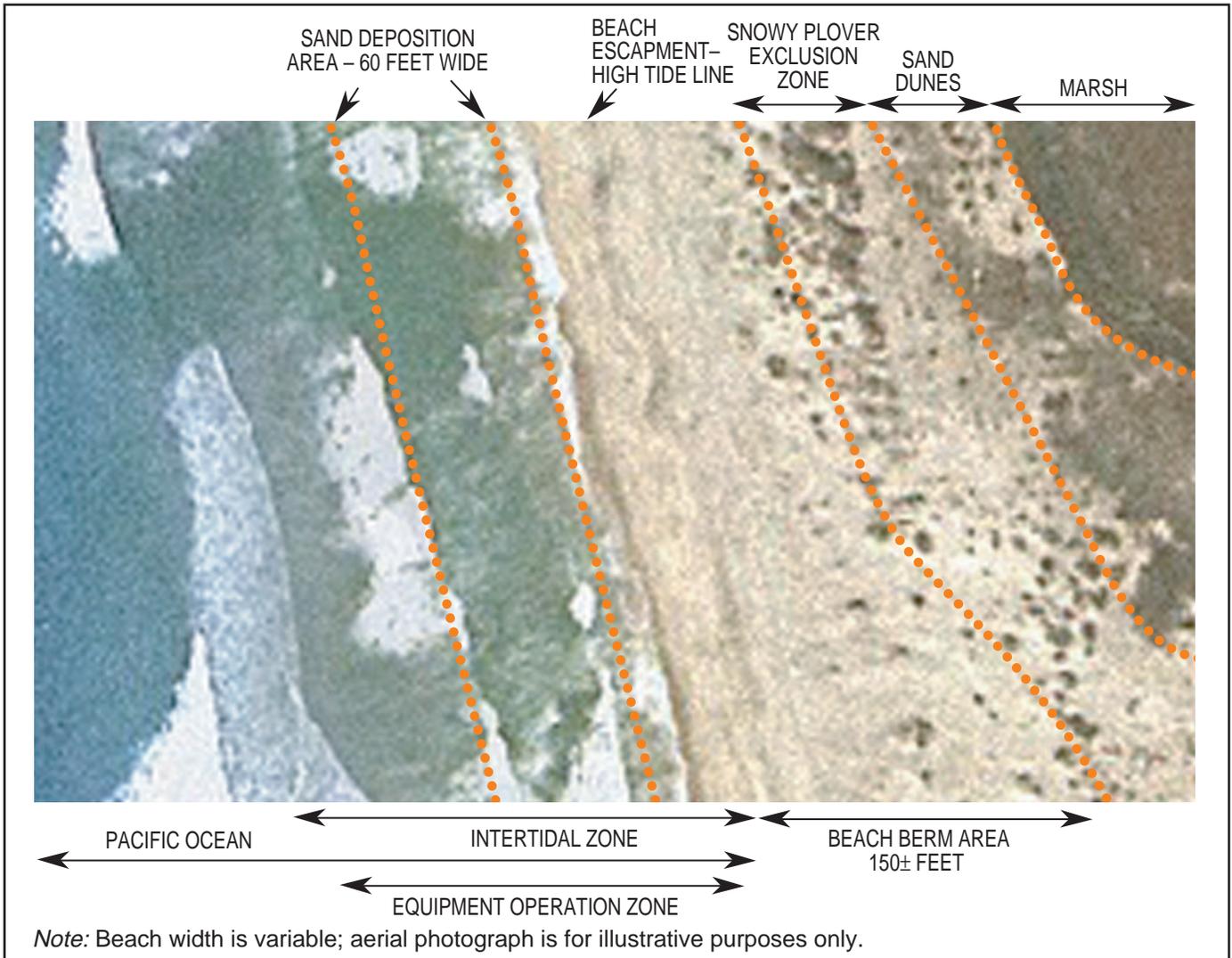


using attachments on their vehicles to assist if they get bogged down in the soft surface of the transport route. Trucks may require more frequent assistance as needed. Additionally, if Route 1 is used then the Monument Road will likely have to be resurfaced and repaired from the damage incurred during the hauling operations. Using Route 2 would eliminate this need.

1.5.4 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.



Schematic of Proposed Beach Work Zone
Tijuana River Estuary

**FIGURE
2-4**

1.6 EXISTING SETTING

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).

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.

1.7 PROJECT CONSTRUCTION DETAILS

1.7.1 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.

1.7.2 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.

1.8 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.

1.9 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.

1.10 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.

1.11 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.