



**ENVIRONMENTAL STEWARDSHIP PLAN  
FOR REPLACEMENT, OPERATION, AND MAINTENANCE  
OF TACTICAL INFRASTRUCTURE  
U.S. BORDER PATROL SAN DIEGO SECTOR,  
IMPERIAL BEACH and Brown Field STATIONS, CALIFORNIA**

**Department of Homeland Security  
U.S. Customs and Border Protection  
U.S. Border Patrol**





## COVER SHEET

### ENVIRONMENTAL STEWARDSHIP PLAN FOR REPLACEMENT, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE

#### U.S. BORDER PATROL SAN DIEGO SECTOR IMPERIAL BEACH AND BROWN FIELD STATIONS, CALIFORNIA

**Responsible Agencies:** U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP).

**Parties Consulted:** Department of the Interior (DOI) including the Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service (USFWS); U.S. Army Corps of Engineers (USACE); United States Section, International Boundary and Water Commission (USIBWC); Tijuana National Estuarine Research Reserve (TNERR); California State Parks; California office of Historic Preservation; California Department of Fish and Wildlife (CDFW); California Coastal Commission (CCC); Native American Heritage Commission (NAHC); San Diego Regional Water Quality Control Board; County of San Diego; City of San Diego; City of Imperial Beach; and Metropolitan Transit System Railroad; and local tribes.

**Affected Location:** United States/Mexico international border in San Diego County, California.

**Project Description:** The Project replaces approximately 14 miles of primary pedestrian fence and other Border Infrastructure System (BIS) improvements along the southwestern border of the United States. The existing primary fence was installed in the 1990s and does not meet current operational needs; the purpose of the new taller and more substantial bollard-style wall is to improve operational control of the border. Project elements include design, site preparation and material delivery, fence removal and replacement, improvements to border security infrastructure, construction of an all-weather access road and lighting improvements. The new fence will be 18 to 30 feet high and the all-weather road will be constructed along the length of the new bollard-style wall. The Project Area<sup>1</sup> will be generally limited to the 60-foot wide Roosevelt Reservation corridor that runs along the United States/Mexico border; however, some hardening of surface stream crossings will occur outside that boundary, as will two primary staging areas that are placed just outside the BIS area and infrastructure improvements that are required on the north levee of the Tijuana River. To ensure full assessment of Project activities, a larger Study Area<sup>2</sup> was developed for natural and cultural resource impact analysis.

**Report Designation:** Environmental Stewardship Plan (ESP).

**Abstract:** CBP plans to construct, operate, and maintain approximately 14 miles of replacement pedestrian fence, an all-weather road, security infrastructure, and lighting improvements along the United States/Mexico international border in San Diego County, California. The Project Area lies within the USBP San Diego Sector. With the exception of a small portion that is managed by USIBWC and some staging

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<sup>1</sup> Definition of Project Area: Area in which permanent or temporary impacts may occur from Project construction activities.

<sup>2</sup> Definition of Study Area: A variable-width area larger than and encompassing the Project Area, which generally extends from 60 feet wide to approximately 350 feet from the border, developed to thoroughly address all potential impacts within the context of the landscape.

and access that will occur on state, county, and city roads, the Project Area is entirely under the administrative jurisdiction of CBP. Project activities will begin near the Pacific Ocean, continuing east along the border, and are divided into four primary segments: the Western, Central, and Eastern segments, and the northern levee of the Tijuana River from the border west to Dairy Mart Road. Construction materials will arrive at two primary staging areas and then be distributed to secondary staging areas in each of the four Project segments.

This Environmental Stewardship Plan (ESP) evaluates potential environmental impacts associated with the Project. Protections and Best Management Practices (BMPs) for factors such as air quality, noise, geological resources, water use and quality, biological resources, cultural resources, and hazardous materials have been incorporated into the Project design.

The public may obtain additional copies of the ESP from the Project Web site at [www.BorderFencePlanning.com](http://www.BorderFencePlanning.com); by emailing [information@BorderFencePlanning.com](mailto:information@BorderFencePlanning.com); or by written request to Mr. Loren Flossman, Program Manager, Secure Border Initiative (SBI) Tactical Infrastructure, 1300 Pennsylvania Ave, NW, Suite 7.2C, Washington, DC 20229, Tel: (877) 752-0420, Fax: (703) 752-7754.

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U.S. Customs and Border Protection  
U.S. Border Patrol

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## EXECUTIVE SUMMARY

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### BACKGROUND

On August 2, 2017, the Secretary of Homeland Security, pursuant to Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996, as amended, issued a waiver in order to ensure the expeditious construction of the Project. Although the Secretary's waiver means that U.S. Customs and Border Protection (CBP) no longer has any specific legal obligations under the laws set aside by the waiver, the Department of Homeland Security and CBP recognize the importance of responsible environmental stewardship. To that end, CBP has prepared this Environmental Stewardship Plan (ESP), which analyzes the potential environmental impacts associated with construction of tactical infrastructure in the U.S. Border Patrol's (USBP's) San Diego Sector (Figures 2.1, Project Location and Segments and Figure 2.2, Project Study Area and Location References). The ESP also discusses CBP's plans as to how it can mitigate potential environmental impacts. The ESP will guide CBP's efforts going forward.

As it moves forward with the Project described in this ESP, CBP will continue to work in a collaborative manner with local governments, state and Federal land managers, and the interested public to identify environmentally sensitive resources and develop appropriate best management practices (BMPs) to avoid or minimize adverse impacts resulting from the installation of tactical infrastructure.

### GOALS AND OBJECTIVES OF THE PROJECT

The Project is being carried out pursuant to Section 102(a) of IIRIRA. Section 102(a) of IIRIRA provides that the Secretary shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the U.S border to deter illegal crossings. In section 102(b) of IIRIRA, Congress has called for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwest border. Finally, in section 102(c) of IIRIRA, Congress granted to the Secretary the authority to waive all legal requirements as determined necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of IIRIRA.

In August of 2017, the Secretary issued a waiver covering, among other things, the replacement of approximately 14 miles of primary pedestrian barrier in the United States Border Patrol (USBP) San Diego Sector (the Project). The existing pedestrian fence no longer meets USBP's operational needs; it will be replaced with a bollard wall that will improve both operational efficiency and safety for those USBP Agents who work in the area. The Secretary's waiver means that CBP does not have any specific legal obligations under the laws that were included in the waiver, but just as was the case with past projects covered by a waiver, DHS and CBP recognize the importance of responsible environmental stewardship of our valuable natural and cultural resources.

### OUTREACH AND AGENCY COORDINATION

CBP notified relevant Federal, state, and local agencies of the Project and requested input on environmental concerns such parties might have regarding the Project. CBP has coordinated with the Department of the Interior (DOI) including the Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service

(USFWS); U.S. Army Corps of Engineers (USACE); United States Section, International Boundary and Water Commission (USIBWC); Tijuana National Estuarine Research Reserve (TNERR); California State Parks; California office of Historic Preservation; California Department of Fish and Wildlife (CDFW); California Coastal Commission (CCC); Native American Heritage Commission (NAHC); San Diego Regional Water Quality Control Board; County of San Diego; City of San Diego; City of Imperial Beach; Metropolitan Transit System Railroad; along with various Native American tribes.

Although the Secretary issued the waiver, CBP has continued to work in a collaborative manner with federal, state, and local agencies, Native American tribes, and other stakeholders and has considered and incorporated agency comments into this ESP.

## **DESCRIPTION OF THE PROJECT**

DHS and CBP will remove and replace approximately 14 miles of primary pedestrian fence, construct an all-weather road, and install lighting improvements along the United States/Mexico international border between the City of Tijuana, Mexico and the City of San Diego, California. The Project Area is located in the USBP San Diego Sector and, with the exception of a small portion that is managed by USIBWC and some staging and access that will occur on state, county, and city roads, it is entirely under the administrative jurisdiction of CBP. The Project Area contains several existing border security infrastructure elements including primary and secondary fences, patrol roads, and lighting and surveillance systems. The existing primary fence, also referred to as the legacy fence, was installed in the 1990s and does not meet current operational needs. The Project will include: (1) design, (2) site preparation and material delivery, (3) removal and replacement of the landing mat fence, and (4) construction of all-weather road and lighting improvements.

For the purposes of this analysis, the Project is divided into four primary segments: the Western, Central, and Eastern Segments (Table 2.1), which are in USBP's San Diego Sector, as well as a segment along the northern levee of the Tijuana River from the border west to Dairy Mart Road (Figure 2.3, North Levee Tijuana River Area), which is the area managed by USIBWC.

The removal of the landing mat fence and installation of the bollard wall will be conducted in sections. As each section of the existing landing mat fence is removed, a new section of bollard wall will be installed. Each new section of bollard wall will be placed into position and secured below ground. In steep or difficult to access areas, work may be supported with a crane, track-mounted drilling rigs, concrete pumps, pile drivers, and excavators. In flat areas smaller boom-trucks and lifts may be used. The Project Area includes areas that cross streams and areas of steep terrain. In some cases the landing mat fence has been installed on top of cement culverts, in which case some drainage modifications or fence realignments may be required. Disposal or recycling of the existing landing mat fence will be the responsibility of the construction contractor.

The Project will also replace a portion of the landing mat fence on the eastern extent of the northern levee along the Tijuana River in the United States. Access roughly parallels Camino De La Plaza in San Ysidro, just west of the San Ysidro POE. Approximately 0.2 miles of the existing fence in this location will also be replaced to match the bollard wall. Prior to removal and installation of the bollard wall, the site will need to be cleared. Removal and installation will follow the same methods described in Section 2.6 above.



Once installed, the site will be returned to conditions similar to those currently existing.

Access to the fence sites will utilize existing roads to the extent feasible, including a mix of federal, state, county, and city roads. Not all fence locations can be accessed by roads wide enough to allow for crane or truck passage; therefore, a 15-foot wide all-weather road will be constructed along the entire 14-mile length of the primary pedestrian fence for the purposes of facilitating fence replacement, maintenance, and later use by USBP. Construction along the primary fence alignment will require grading for the 15-foot wide all-weather gravel road, with six feet of additional width for embankments, for a total 21-foot-wide graded corridor along the length of the project. In areas with steep terrain, and at certain stream crossings, grading will also include concrete paving. Most grading will occur within the Roosevelt Reservation, or within 60 feet of the international border, and will be minimized to the extent feasible. Drainage improvements may be constructed across the entire Study Area as needed.

## ENVIRONMENTAL IMPACTS AND BEST MANAGEMENT PRACTICES

Table ES-1 provides an overview of potential environmental impacts by specific resource area and a brief summary of associated BMPs. Chapters 3 through 12 of this ESP evaluate these impacts and expand upon these BMPs.

CBP followed specially developed design criteria to reduce adverse environmental impacts. CBP will have environmental monitors on-site and impacts will be documented during construction to determine the extent and scope of mitigation measures necessary to reduce or offset adverse environmental impacts. Design criteria to reduce adverse environmental impacts included consulting with Federal and state agencies and other stakeholders to develop appropriate BMPs and avoiding physical disturbance and construction of solid barriers in wetlands/riparian areas and streambeds, where practicable. BMPs will include implementation of a Construction Mitigation and Restoration (CM&R) Plan, Spill Prevention Control and Countermeasure (SPCC) Plan, Storm Water Pollution Prevention Plan (SWPPP), Environmental Protection Plans (EPPs), Dust Control Plan, Fire Prevention and Suppression Plan, and Unanticipated Discovery Plan.

In addition to the design criteria and BMPs, CBP may implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. CBP will assess the actual impacts from the Project after it is complete. CBP's assessment will be based on, among other things, feedback from environmental monitors and the final construction footprint. To the extent mitigation is warranted and funding is available, CBP would work with stakeholders, including the Department of the Interior (DOI) and USACE, to identify and implement appropriate mitigation measures.

The following definitions describe characteristics that might relate to various impacts:

- *Short-term or long-term.* These characteristics are determined on a case- by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- *Direct or indirect.* A direct impact is caused by an action and occurs contemporaneously at or near the location of the action. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but is still a reasonably foreseeable outcome of the action.

- *Negligible, minor, moderate, or major.* These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. A major impact is one that is severely adverse or exceptionally beneficial.
- *Adverse or beneficial.* An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

**Table ES-1. Summary of Environmental Impacts, Mitigation, and BMPs**

<b>Resource Area</b>	<b>Impacts of the Project</b>	<b>BMPs/Mitigation</b>
Air Quality	Short-term minor adverse impacts will be expected.	<ul style="list-style-type: none"> <li>• BMPs to reduce dust and control PM<sub>10</sub> emissions.</li> <li>• Construction equipment will be kept in good operating condition to minimize exhaust.</li> <li>• Minimal diesel idling and routine watering of construction site and access roads.</li> <li>• Construction speed limits will not exceed 30 miles per hour.</li> </ul>
Noise	Short-term moderate adverse impacts will be expected.	<ul style="list-style-type: none"> <li>• Mufflers and properly working construction equipment will be used to reduce noise.</li> <li>• Generators will have baffle boxes, mufflers, or other noise abatement capabilities.</li> <li>• Blasting mats will be used to minimize noise and debris.</li> </ul>
Land Use	Short and long-term negligible to minor adverse and long-term minor beneficial impacts will be expected.	None required.
Aesthetics	Short-term moderate adverse and long-term adverse impacts will be expected.	None required.
Geological Resources	Short and long-term minor to moderate adverse impacts will be expected.	<ul style="list-style-type: none"> <li>• Construction-related vehicles will remain on established roads while traveling to and from the work site and areas with highly erodible soils will be avoided when possible.</li> <li>• Erosion control measures, such as waterbars, gabions, straw bales, and revegetation, will be implemented during and after construction activities.</li> <li>• Conservation of topsoil will take place via storage for future use.</li> </ul>
Water Use and Quality		
Hydrology and Groundwater	Short and long-term negligible adverse impacts will be expected.	<ul style="list-style-type: none"> <li>• Incorporation of detention/recharge basins into the road design.</li> </ul>

<p>Surface Waters, Wetlands, and Other Waters of the United States</p>	<p>Short-term minimal adverse impacts will be expected.</p>	<ul style="list-style-type: none"> <li>• BMPs in the SWPPP will be implemented to reduce potential stormwater erosion and sedimentation effects on local drainages.</li> <li>• Water tankers will not discard unused water where it has the potential to enter any aquatic or marsh habitat.</li> <li>• Water storage within the Study Area should be maintained in closed on-ground containers located on upland areas, not in washes.</li> <li>• Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected.</li> <li>• Wetland areas will be restored and revegetated with native species.</li> </ul>
<p>Floodplains</p>	<p>Short-term and long-term minimal adverse impacts will be expected.</p>	<p>None required.</p>
<p>Biological Resources</p>		
<p>Vegetation</p>	<p>Short and long-term moderate to major adverse impacts, and short and long-term minor beneficial impacts</p>	<ul style="list-style-type: none"> <li>• Construction equipment will be cleaned to minimize spread of nonnative species.</li> <li>• Removal of trees and brush in habitats of federally listed species will be limited to the smallest amount needed to meet the objectives of the project.</li> <li>• Invasive plants that appear on the Project site will be removed.</li> <li>• Impacted areas will be revegetated with native species.</li> <li>• Grading or topsoil removal will be limited to areas of necessity and within the limit of grading to provide required ground conditions for construction and maintenance activities. The top six inches of topsoil will be stockpiled for use in revegetation whenever feasible.</li> </ul>
<p>Wildlife and Aquatic Resources</p>	<p>Short and long-term minor to moderate adverse impacts and long-term beneficial impacts will be expected.</p>	<ul style="list-style-type: none"> <li>• Construction, vegetation clearing, and site preparation activities should take place outside of nesting bird season (February 1 through August 31).</li> <li>• Environmental monitor onsite during construction to account for occurrences of special status species.</li> <li>• If federally protected species are encountered, monitor can recommend the temporary suspension of construction activities to the construction manager.</li> </ul>

<p>Wildlife and Aquatic Resources Cont.</p>		<ul style="list-style-type: none"> <li>• Bollard fence will allow transboundary migration of small animals.</li> <li>• To prevent entrapment of wildlife all excavated holes or trenches will either be covered or provided with wildlife escape ramps.</li> <li>• All poles and posts will be covered to prevent entrapment and discourage roosting.</li> <li>• The construction perimeter and areas with sensitive resources to be protected will be clearly demarcated with flagging and disturbance outside the construction perimeter will not be permitted.</li> </ul>
<p>Special Status Species</p>	<p>Short and long-term minor to moderate adverse and minor beneficial impacts will be expected.</p>	<ul style="list-style-type: none"> <li>• Pre-construction surveys will be completed to identify special status species numbers and locations.</li> <li>• Special status species and their habitats will be avoided whenever feasible, and when not feasible the individuals will be transplanted, relocated, or will be given time to move/fledge on their own.</li> <li>• Environmental monitor onsite during construction to account for occurrences of special status species.</li> <li>• If federally protected species are encountered, construction will stop until the biological monitor can safely remove the individual or it moves away on its own.</li> <li>• Bollard fence will allow transboundary migration of small animals.</li> </ul>
<p>Cultural Resources</p>	<p>Long-term negligible to minimal adverse impacts will be expected.</p>	<ul style="list-style-type: none"> <li>• Preconstruction surveys and documentation of cultural resources have been completed within the construction corridor.</li> <li>• Designated construction staging areas and transportation corridors have been identified to limit potential impacts to cultural resources. All construction vehicles and equipment are to stay within designated work areas.</li> <li>• If cultural resources are encountered, work must stop and the monitors must be notified. The monitor(s) will coordinate with the on-site construction supervisor and with project management. An archaeologist will assess the find and make recommendations to the CBP.</li> </ul>

<p>Cultural Resources Cont.</p>		<ul style="list-style-type: none"> <li>• All cultural resources should be treated with respect and dignity. No photographs should be taken of any human remains.</li> </ul>
<p>Socioeconomic Resources</p>	<p>Short and long-term minor beneficial impacts will be expected.</p>	<p>None required.</p>
<p>Hazardous Materials and Wastes</p>	<p>Short-term and long-term minor adverse impacts will be expected.</p>	<ul style="list-style-type: none"> <li>• All fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system.</li> <li>• The refueling of machinery will be completed following accepted industry guidelines, and all vehicles will have drip pans during storage.</li> <li>• Any spill of reportable quantities will be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock, etc.) will be used to absorb and contain the spill.</li> <li>• A Spill Prevention, Control, and Countermeasures Plan (SPCCP) will be in place prior to the start of operations, and all personnel will be briefed on this plan.</li> <li>• All equipment maintenance, laydown, and dispensing of fuel, oil, or any other such activities will occur in the staging area identified for use in this ESP. The designated staging area will be located in such a manner as to prevent runoff from entering waters of the United States. All used oil and solvents will be recycled if practicable. All non-recyclable hazardous and regulated wastes will be handled consistent with U.S. Environmental Protection Agency (EPA) standards.</li> <li>• Nonhazardous waste materials, such as construction waste, will be contained until removed from the construction site. Solid waste receptacles will be maintained at the staging areas, and non-hazardous solid waste will be collected and deposited in on-site receptacles. Waste materials and other discarded materials contained in these receptacles will be removed from the site as quickly as practicable.</li> </ul>

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**SECTION 1.0**

**GENERAL PROJECT DESCRIPTION**

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## **1.0 GENERAL PROJECT DESCRIPTION**

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### **1.1 INTRODUCTION TO THE ENVIRONMENTAL STEWARDSHIP PLAN**

The principal mission requirements of the Department of Homeland Security (“DHS”) include border security and the detection and prevention of illegal entry into the United States. Congress has provided the Secretary of Homeland Security (the Secretary) with a number of authorities necessary to carry out DHS’s border security mission. One of these authorities is found in section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA). Section 102(a) of IIRIRA provides that the Secretary shall take such actions as may be necessary to install additional physical barriers and roads (including the removal of obstacles to detection of illegal entrants) in the vicinity of the U.S border to deter illegal crossings in areas of high illegal entry into U.S lands. In section 102(b) of IIRIRA, Congress has called for the installation of additional fencing, barriers, roads, lighting, cameras, and sensors on the southwest border. Finally, in section 102(c) of IIRIRA, Congress granted to the Secretary the authority to waive all legal requirements as determined necessary to ensure the expeditious construction of barriers and roads authorized by section 102 of IIRIRA.

DHS has used the authority granted to it by Congress in Section 102 of IIRIRA to construct needed border infrastructure across the southwest U.S. border. U.S. Customs and Border Protection (CBP) is the DHS component that has primary responsibility for such construction. CBP’s construction of border infrastructure has been aided by the waiver authority set forth in Section 102(c) of IIRIRA. Although the waiver authority has facilitated the construction of border infrastructure, DHS/CBP has continually made a voluntary commitment to responsible environmental stewardship for projects covered by an IIRIRA waiver.

In August of 2017, the Secretary issued a waiver covering, among other things, the replacement of approximately 14 miles of primary pedestrian barrier in the United States Border Patrol (USBP) San Diego Sector (the Project). The existing pedestrian fence no longer meets USBP’s operational needs; it will be replaced with a bollard-style wall that will improve both operational efficiency and safety for those USBP Agents who work in the area. The Secretary’s waiver means that CBP does not have any specific legal obligations under the laws that were included in the waiver, but just as was the case with past projects covered by a waiver, DHS and CBP recognize the importance of responsible environmental stewardship of our valuable natural and cultural resources. In order to work toward responsible environmental stewardship, CBP has completed environmental resource surveys, consulted with various stakeholders, and prepared this Environmental Stewardship Plan (ESP). The 2017 waiver is included as Appendix A.

The results of CBP’s environmental review of the Project are being published in this ESP. The ESP includes a summary of the Best Management Practices (BMPs) that have been developed to help CBP avoid, minimize, and mitigate for potential environmental impacts and will guide the planning and execution of the Project.

This ESP was prepared in order to evaluate potential impacts of the Project on natural and human resources and to assist CBP and USBP to the extent practicable, while still achieving their security goals, in protecting critical resources during construction and operation of the tactical infrastructure (TI) being installed as a part of the Project. This ESP is designed to identify each affected resource and evaluate all potential impacts on that resource. This ESP was not prepared to comply with specific laws or regulations; rather, it is a

planning and guidance tool to facilitate construction in a manner that will minimize adverse impacts to the extent practicable.

The Project Area in this document refers to the area in which permanent or temporary impacts may occur from Project construction activities. These impacts will generally be restricted to the 60-foot wide corridor along the United States/Mexico border known as the Roosevelt Reservation, plus two primary staging areas and a narrow strip of land along the northern levee of the Tijuana River Valley. To thoroughly address the potential impacts of the Project, a larger and variable-width Study Area was analyzed as well, which generally extends from 60 feet wide to approximately 350 feet from the border.

Some resources within the Project's region of influence (ROI), which is San Diego County, California, are not addressed in this ESP because they are either not relevant to the analyses or the impacts to such resources are negligible. The resources that are excluded from further analyses, and the reasons for eliminating them are:

- **Climate:** An Executive Order dated March 28, 2017 rescinded guidance provided earlier in a Council on Environmental Quality (CEQ) memorandum regarding the approach to GHG and climate decision-making analyses<sup>1</sup>. Pursuant to the Executive Order, further analysis of GHG impacts from the Project is not required.
- **Sustainability:** The Project will use minimal resources during construction and maintenance and there will be minimal changes in USBP operations. Therefore, the Project would have a negligible impact on sustainability.
- **Human health and safety:** Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage, and no workplace safety laws or regulations were included in the waiver. The Occupational Safety and Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA) issue standards that specify the amount and type of training required for industrial workers, the use of protective equipment and clothes, engineering controls, and maximum exposure limits with respect to workplace stressors. The Project will not introduce new or unusual safety risks and construction protocols are expected to be carefully followed. Furthermore, the Project will benefit the safety of USBP agents and the public in the vicinity of the border by increasing operational efficiency of border infrastructure and reducing the flow of weapons, illegal drugs, and other contraband into the U.S. Since the only potential impacts of the Project on human safety are beneficial, this topic will not be reviewed in detail in the ESP.
- **Prime farmlands:** No impact will occur on soils protected by the Farmland Protection Policy Act because none are located within the Study Area.
- **Transportation effects on non-federal existing roads:** The vast majority of the project takes place on land under federal jurisdiction. However, some access routes may require use of state park,

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<sup>1</sup> *Executive Order, Promoting Energy Independence and Economic Growth. March 28, 2017*

county and limited access on some city roads. The anticipated impacts of this limited and temporary use of existing roads to replace the fence is expected to be minimal.

## **1.2 USBP BACKGROUND**

CBP's mission is to safeguard America's borders, thereby protecting the public from dangerous people and materials while enhancing the Nation's global economic competitiveness by enabling legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining operational control of the U.S. border between ports of entry (POEs). USBP's mission strategy consists of five main objectives:

- Establish the requisite substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between POEs.
- Deter cross border violations through improved enforcement.
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband.
- Leverage "smart border" technology to multiply the effect of enforcement personnel.
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the United States/Mexico international border. Each sector is responsible for implementing an optimal combination of personnel, technology, and infrastructure appropriate to its operational requirements. The San Diego Sector is responsible for San Diego County in California. The areas affected by the Project include the western portion of the border in San Diego County.

## **1.3 GOALS AND OBJECTIVES OF THE PROJECT**

The goal of the Project is to ensure CBP is able to fulfill its mission and prevent illegal entries into the U.S. This Project will help to achieve operational control of the United States/Mexico international border.

The Project will help deter cross border violations within the USBP San Diego Sector by improving border infrastructure, preventing terrorists and weapons from entering the U.S., reducing the flow of illegal drugs and other contraband, and thus providing a safer environment for USBP agents and the public.

## **1.4 STAKEHOLDER OUTREACH**

CBP has notified numerous tribes, agencies, and non-profit organizations of their intent to replace the fence with a larger bollard style wall. Stakeholders with interests in the area include:

U.S. Section, International Boundary and Water Commission (USIBWC) – The USIBWC is responsible for operation of the Tijuana River Floodway (TRF) just west of the San Ysidro POE. CBP has coordinated with USIBWC to ensure that any construction along the United States/Mexico Border does not adversely

affect International Boundary Monuments or substantially impede floodwater conveyance within international drainages.

Department of the Interior (DOI) - DOI oversees land management activities of the Bureau of Land Management, the Fish and Wildlife Service, and the National Park Service. CBP has coordinated with the DOI to address natural and cultural resource issues of mutual interest within the Study Area.

U.S. Army Corps of Engineers (USACE) - Regulatory Division - CBP has coordinated all activities with USACE to identify potential jurisdictional Waters of the U.S., including wetlands, and to develop measures to avoid and minimize impacts to these resources. The Wetland Delineation Report is in Appendix B.

U.S. Fish and Wildlife Service (USFWS) - CBP has coordinated extensively with USFWS (including the San Diego National Wildlife Refuge) to identify listed species that have the potential to occur in the Study Area and has cooperated with USFWS to prepare BMPs to reduce or offset adverse impacts. The Biological Survey Report is in Appendix C, which discusses permanent and temporary impacts to each habitat type within the Study Area.

U.S. Environmental Protection Agency (EPA) - CBP has coordinated with EPA to obtain feedback regarding, among other things, potential mitigation opportunities for unavoidable impacts, should mitigation be necessary, and to ensure appropriate Storm Water Pollution Prevention Plan (SWPPP) guidelines are implemented.

Tijuana River National Estuarine Research Reserve (TRNERR) - CBP has coordinated with TRNERR concerning areas of the Project that may result in adverse effects to the Tijuana River. BMPs to reduce the potential for pollutant release and sedimentation buildup, particularly near the Tijuana River, are included. TRNERR may be interested in direct mitigation and restoration activities to offset potential unavoidable impacts, should such mitigation be necessary.

California State Parks - CBP has coordinated with California State Parks and the Border Field State Park specifically to, manage sediment and identify listed species with the potential to occur in the Study Area.

California Office of Historic Preservation - CBP has coordinated with the California Office of Historic Preservation regarding the protection and preservation of California's historic resources.

California Department of Fish and Wildlife (CDFW) - CBP has coordinated with CDFW regarding potential impacts to species within their jurisdiction.

California Coastal Commission (CCC) - CBP has coordinated with the CCC regarding potential impacts to coastal resources.

San Diego Regional Water Quality Control Board - CBP has coordinated with the San Diego Regional Water Quality Control Board regarding appropriate water quality BMPs to minimize potential sedimentation and pollution resulting from Project implementation.



County of San Diego - CBP has coordinated with the County to ensure plans, such as the Multiple Species Conservation Program, were reviewed and species evaluated for impacts. BMPs will be incorporated to offset potential impacts.

City of San Diego - CBP has coordinated with the City to ensure plans, such as the City of San Diego's Subarea Plans, were reviewed and species evaluated for impacts. BMPs will be incorporated to minimize potential impacts.

City of Imperial Beach - CBP has coordinated with the City regarding design features and potential conflict with city planning goals.

Tribes - CBP has coordinated with the following tribes to alert them of the Project. Tribes included on the notification list include:

- Barona Band of Mission Indians
- Campo Band of Mission Indians
- Ewiiapaayp Tribal Office
- Inaja Band of Mission Indians
- Jamul Indian Village
- La Posta Band of Mission Indians
- Manzanita Band of Kumeyaay Nation
- San Pasqual Band of Mission Indians
- Sycuan Band of the Kumeyaay Nation
- Viejas Band of Kumeyaay Indians

## **1.5 BEST MANAGEMENT PRACTICES AND MITIGATION**

It is CBP's policy to reduce impacts through the sequence of avoidance, minimization, and mitigation. Best Management Practices (BMPs) vary based on location and resource type. Both general BMPs and species-specific BMPs have been developed during the preparation of this ESP. CBP may also implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. Project impacts will be documented during construction, and assessed through monitoring after Project construction has been completed. CBP's assessment of mitigation will be based on, among other things, feedback from environmental monitors and the final construction footprint.

### *General Design BMPs*

The design build contract will include design performance measures aimed at avoiding impacts prior to any construction. Designs will be evaluated on their ability to avoid and otherwise minimize environmental impacts by incorporating the following Design BMPs:

1. Maximum use of existing roads for construction access.
2. Limited construction of new access roads and storage areas.
3. Lands and roads disturbed by temporary impacts repaired/returned to pre-construction conditions.
4. Early identification and protection of sensitive resource areas to be avoided.

5. Collection and storage of native plant material for reuse in restoration.
6. Restoration of grades, soils, and vegetation in temporarily disturbed areas.
7. On-site retention of stormwater and runoff.

The following sections describe those measures that may be implemented to reduce or eliminate potential adverse impacts on specific aspects of the human and natural environment. Many of these measures have been incorporated by CBP as standard operating procedures based on past projects. Below is a summary of BMPs for each resource category that will be potentially affected. The BMPs have been coordinated with the appropriate agencies and land managers or administrators.

### **1.5.1 Air Quality**

Measures will be incorporated to ensure that emissions of particulate matter less than 10 microns in size (PM-10) do not significantly impact the environment. Such measures will include dust suppression methods to minimize airborne particulate matter and diesel emissions generated during construction activities. Standard construction BMPs, such as minimized diesel idling and routine watering of the construction site and access roads, will be used to control fugitive dust during the construction phases of the Project. Additionally, all construction equipment and vehicles will be maintained in good operating condition to minimize exhaust emissions.

### **1.5.2 Noise**

During the construction phase, short-term noise impacts are anticipated. All OSHA requirements will be followed by the contractor. The blasting contractor will provide further analysis of blasting techniques and measures to be taken to ensure negligible impacts from the blasting. Construction equipment will possess properly working mufflers and will be properly tuned to reduce backfires.

### **1.5.3 Geological Resources**

Vehicular traffic associated with construction and operational support will remain on established roads to the maximum extent practicable. Areas with highly erodible soils will be given special consideration when designing the Project to incorporate erosion control techniques, such as straw bales (weed seed free), silt fencing, aggregate materials, wetting compounds, and rehabilitation, where possible, to decrease erosion. A SWPPP will be prepared prior to construction activities and BMPs described in the SWPPP will be implemented to reduce erosion.

Erosion control measures, such as waterbars, gabions, straw bales, and revegetation, will be implemented during and after construction activities. Revegetation efforts will be needed to ensure long-term recovery of the area and to prevent major soil erosion problems.

### **1.5.4 Hydrology and Water Management**

With regard to managing stormwater flows, CBP will address the potential for sedimentation and erosion with appropriate BMPs, many of which are listed in the County of San Diego's BMP Design Manual. A

SWPPP will be adopted and implemented by contractors performing work on the Project, which will also include BMPs to reduce potential stormwater erosion and sedimentation effects on local drainages.

The changing of oil, refueling, and other actions that could result in a release of a hazardous substance should be restricted to designated areas that are a minimum of 100 feet from any wetland or vernal pool preserve. Such designated areas should be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals. Any accidental spills should be immediately contained, cleaned up, and properly disposed of.

Recycled water will be used for dust suppression to the maximum extent possible. Water tankers will not discard unused water where it has the potential to enter any aquatic or marsh habitat. Water storage within the Project Area should be maintained in closed on-ground containers located on upland areas, not in washes. Pumps, hoses, tanks, and other water storage devices will be cleaned and disinfected.

All engineering designs and subsequent hydrology reports will be reviewed by USIBWC prior to the start of construction activities so that the results of those activities do not increase, concentrate, or relocate overland surface flows into the United States or Mexico.

### **1.5.5 Biological Resources**

The following summary of general and species-specific Biological BMPs will be implemented, which are referenced in more detail in the Biological Survey Report prepared for the Project (Appendix C). This list has been ordered to follow a typical construction sequence and discusses species and habitat-specific BMPs at the end. CBP recognizes all measures and BMPs discussed as valid interests and will work with USFWS and other appropriate agencies to address impacts to the greatest degree feasible, given that the Project is operating under the Secretary's waiver.

1. Plant surveys and salvage operations will occur prior to fence and road construction. Native plant materials in the path of construction will be removed and stored in a designated nursery site protected with shade and with available water for irrigation. Removal of trees and brush in habitats of Federally-listed species will be limited to the smallest amount needed to meet project objectives, as this activity is typically considered a permanent impact on habitat.
2. Areas already disturbed, or those to be disturbed later in the construction sequence, will be used for staging, parking, and equipment storage. Widening of existing or created roadbeds beyond approved designs will be prohibited. New roads will be properly sited and designed to limit erosion, especially into Federally-listed species habitat and will also avoid containment of any surface flows due to site grading.
3. To prevent impacts to avian species covered under the MBTA, clearing and grubbing should take place in fall and winter if possible to avoid impacts to nesting birds. If work cannot be avoided during the breeding season (February 15 to September 15), a biologist will survey for nesting birds and identify any nests one week prior to starting work. An appropriate buffer for avoidance will be established around any nesting birds until the young have fledged or the nest is no longer being used.

4. The perimeter of all areas to be disturbed and/or protected during construction or maintenance activities will be clearly demarcated using flagging or temporary construction fence prior to habitat clearing, and the marked boundaries maintained throughout the construction period. Disturbance outside of the construction perimeter will not be permitted. Construction travel will generally be constrained to previously disturbed areas wherever possible, using only designated roads and parking areas. This will limit the development of multiple roads and limit impacts to federally listed habitats and Waters of the U.S.
5. A designated biological monitor will be present during all activities that could impact Federal-listed species present on or near the Study Area (including vernal pools), based on species location maps and/or results of surveys. The biologist will monitor construction activities within designated areas during critical times such as breeding seasons, vegetation removal, and the installation of BMPs and will ensure minimization measures are properly followed. The biologist will submit quarterly compliance reports (including photographs of impact areas) to CBP, which will document whether authorized impacts were exceeded and whether there was compliance with Project BMPs. A separate memo/report should be prepared and submitted to CBP immediately if/when an impact occurs outside of the approved project limits. The biologist will also submit a final report to CBP within 60 days of project completion that includes: as-built construction drawings with an overlay of impacted areas and other relevant information documenting that authorized impacts were not exceeded and that general compliance with conservation measures was achieved
6. With the guidance of a biologist familiar with the potential species and habitats to be affected, CBP will develop a training plan regarding sensitive resources for CBP and construction personnel. This BMP does not apply to Border Patrol operations. The training will include at a minimum descriptions of the resource and purpose for its protection, the conservation measures that must be implemented, and environmentally responsible construction practices.
7. Within the designated disturbance area, grading or topsoil removal will be limited to areas of necessity and within the limit of grading to provide required ground conditions for construction and maintenance activities. Minimizing the disturbance footprint minimizes impacts and restoration requirements. The top six inches of topsoil will be stockpiled for use in revegetation whenever feasible. Stockpiles will not exceed 3.5 feet in height and will be covered with natural materials such as burlap. No plastic is permitted due to the heat's sterilization effect on the topsoil.
8. Materials used for construction and on-site erosion control will be biodegradable and free of non-native plant seeds and other non-native plant parts to limit potential for infestation. Some natural materials cannot be fully certified as completely weed-free, and if such materials are used, follow-up monitoring and control to limit establishment of non-native plants will be implemented during the establishment period to insure native plant materials provide effective erosion control cover. Erosion control blankets and wattles will use biodegradable netting.
9. All material sources will be reviewed and approved prior to material being brought on site. Borrow areas for fill materials such as rock, gravel, or topsoil will be obtained from existing developed or previously used sources, not from undisturbed areas within or adjacent to the Study Area.

10. To eliminate attracting predators of protected animals, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site.
11. Any night lighting for the construction of the Project will be selectively placed, shielded, and directed away from all native vegetative communities north of the project footprint and the beach.
12. Waste contaminated with construction materials or from cleaning equipment carries oils, toxic materials, or other contaminants. Contaminated wastewater will be stored in closed containers on site until removed for disposal. Concrete wash water will not be dumped on the ground, but is to be collected and moved offsite for disposal. This wash water is toxic to aquatic life.
13. Construction speed limits will not exceed 35 mph on major unpaved roads (graded with ditches on both sides) and 25 mph on all other unpaved roads. Night time travel speeds will not exceed 25 mph, and may be less based on visibility and other safety considerations.
14. To prevent entrapment of wildlife species, the ends of all hollow construction stock, such as vertical fence posts/bollards, including those that will later be filled with reinforcing or other materials, shall be covered to prevent wildlife from entering. Covers of all hollow construction stock will be in place upon arrival at the site and will be retained until such time the material is filled or otherwise closed to prevent entry by an animal. Construction (temporary or otherwise) of steep-walled pits is also to be avoided to prevent animal entrapment. Excavations more than 18 inches deep will be covered or a means of small animal escape provided, such as a firmly placed board (8" or wider) or an earthen ramp at a slope no steeper than 4:1, to prevent animal entrapment.
15. All areas temporarily impacted by Project construction will be revegetated with native plant species following a Service-approved restoration plan. Restoration plans and activities will be completed by restoration firms with at least five years of experience in conducting successful comprehensive ecological restoration in southern California of the habitat type to be restored.
16. During follow-up monitoring and during maintenance activities, invasive plants found on the site will be treated and removed from the site. All chemical applications will be performed by a licensed applicator and herbicides will be used only according to label directions. The monitoring period will be defined in the site revegetation plan. Training to identify non-native invasive plants will be provided for CBP personnel or contractors, as necessary. Restored areas will have successfully established native plant communities within five years of implementing the plan.
17. In addition, species-specific and habitat-specific BMPs are also recommended:
  - a. Burrowing Owl (*Athene cunicularia*)

Burrowing owl surveys shall be conducted 30 days prior to commencement of construction in burrowing owl areas. Active burrows shall be flagged for avoidance with a 250-foot buffer. Active burrows that cannot be avoided will be collapsed. If construction is during the nesting period (February 1 through August 31), the presence of eggs or young will be determined before

owls are prevented from re-entering and collapsing the burrows following established guidelines. If young are present, burrows will not be collapsed until they fledge.

b. Coastal California Gnatcatcher (*Polioptila californica californica*)

Between February 15 and August 15, construction surveys will be conducted to determine if gnatcatchers are nesting within 300 feet of construction activities prior to construction commencing. If a nest is found, an 8-foot plywood sound wall will be established as far from the nest as possible, but no less than 50 feet between construction and the nest. CBP will schedule work within or adjacent to suitable gnatcatcher habitat outside of breeding season (March 1 through August 15). If this is not possible, CBP should contact USFWS to discuss.

Areas of coastal sage scrub will be avoided to the extent practicable. Where they cannot be avoided, portions of the overstory will be salvaged and the remainder will have 6 inches of topsoil and grubbed vegetation stockpiled to assist in revegetation. Compensatory mitigation measures for unavoidable impacts (see Section 1.5.8) should be considered. As noted, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

c. San Diego Fairy Shrimp (*Branchinecta sandiegonensis*)

CBP should perform dry season survey for fairy shrimp in areas identified as vernal pools in the Biological Survey Report. San Diego fairy shrimp vernal pool habitat will be flagged and avoided. If this is not possible, then the top 2 inches of the soil in the vernal pool habitat will be salvaged and used for revegetation in appropriate wetlands. The salvaged soil will be stored separately from other salvaged soils. Compensatory mitigation measures for unavoidable impacts (see Section 1.5.8) should be considered. As noted, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

d. Quino Checkerspot Butterfly (*Euphydryas editha quino*)

CBP should staff a qualified biologist familiar with the Quino Checkerspot Butterfly who will be responsible for overseeing compliance with protective measures. The project biologist must be knowledgeable of Quino biology and ecology. The biologist should perform preconstruction surveys to determine the presence of Quino hostplants in the project impact footprint and flag these occurrences with a minimum two foot buffer. These plants will be avoided if possible. If this is not possible, compensatory mitigation measures for unavoidable impacts (see Section 1.5.8) should be considered. As noted, however, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding. Larvae surveys are not recommended, as the larvae will be interspersed throughout the Project Area; however, if the project continues into the 2019 Quino flight season (determined annually by USFWS staff), then CBP should conduct another round of surveys.

e. Protection of Special Status Plants

To prevent impacts to special-status plant species, initial surveys were conducted in the fall of 2017 and additional spring surveys are recommended to identify spring flowering species prior to ground-clearing activities. Special-status plants will be identified for avoidance, or if they cannot be avoided, they will be salvaged if possible (either whole plants or soils), depending on factors such as species and phenology. If plants cannot be avoided or salvaged, the extent and location of the population will be documented and provided to CBP. Compensatory mitigation measures for unavoidable impacts (see Section 1.5.8) should be considered. As noted, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

f. Snake Cholla (*Cylindropuntia californica* var. *californica*)

There is one population of this large perennial cactus that grows along the ground within the Study Area. Avoidance is recommended where possible. Where not possible, collecting the cacti and using them to resprout in the revegetation areas is recommended.

g. Brand's phacelia (*Phacelia stellaris*)

The extent of this population is mapped by USFWS in the conservation agreement with CBP. It is recommended that this area and a 30-foot buffer around the area, if possible, be avoided during construction. This area should also be surveyed in the spring for this species to make sure the mapping is correct prior to construction. If avoidance is not possible, coordination with the Brand's phacelia conservation working group on removing the soils and transplanting to a suitable location is recommended.

h. Shaw's agave (*Agave shawii* var. *shawii*)

There is one individual of Shaw's agave in the Study Area. It is recommended that this individual is flagged and avoided if possible. If avoidance is not possible, then transplantation into the revegetation areas is recommended. Transplanted plants should maintain the same orientation towards the sun.

i. Otay Tarplant (*Deinandra conjugens*)

CBP should staff a qualified biologist familiar with the Otay tarplant who will be responsible for overseeing compliance with protective measures. The project biologist must be knowledgeable of Otay tarplant biology and ecology. The biologist should perform preconstruction surveys to determine the presence of Otay tarplant in the project impact footprint. This species cannot be positively identified before it flowers, typically between July and August, so the biologist should flag or fence young tarplant occurrences, including a minimum two foot buffer, east of the San Ysidro POE so that they can be avoided to the extent feasible. If this is not possible, then seed should be collected from Otay tarplants for planting at other locations and compensatory mitigation measures (see Section 1.5.8) should be considered.

j. Vernal Pools

Vernal pools were not identified as being present within the Study Area boundaries; however, there are vernal pools adjacent to the Study Area, and given the degree of sensitivity of this resource, Project operations should avoid impact to these areas. Impacts to vernal pools are difficult and time-consuming to mitigate and restore, including hydraulic analyses, collection of topsoil and native plants, planting and establishment of native plants and animals, and long-term funding, reporting, and monitoring. A full list of vernal pool conservation measures was provided via consultation with the USFWS and has been included as Appendix D.

### 1.5.6 Cultural Resources

Cultural resources are the remains of past human life that document our history. They are non-renewable and are particularly important to indigenous groups. Examples include prehistoric villages, campsites, milling stations, rock art, railroads, bridges, buildings, agricultural features, plant gathering areas, and trails. Cultural resources are typically protected by state and federal laws because of their cultural significance and the fact that information can be destroyed when these resources are disturbed.

The artifacts of previous cultures such as the Kumeyaay and Luiseño tribes, the Spanish occupations, and the early American Period on the site could include: stone tools, pottery, arrow points, prehistoric and historic archaeological sites, old cans and bottles, historic structures, and human burials. Border monuments are also considered important cultural resources. Cultural resources can occur on the surface and underground, and are not specifically identified on plans to protect their locations.

BMPs to protect cultural resources include:

1. Preconstruction surveys and documentation of cultural resources have been completed within the construction corridor (Appendix E).
2. Designated construction staging areas and transportation corridors have been identified to limit potential impacts to cultural resources. All construction vehicles and equipment are to stay within designated work areas.
3. If cultural resources are encountered, work must stop and the monitors must be notified. The monitor(s) will coordinate with the on-site construction supervisor and with the project management. An archaeologist will assess all findings and make recommendations to the CBP.
4. Archaeological material collected during the current Project will be cross analyzed with collections from earlier investigations for data recovery purposes.
5. A clear curation plan will be in place prior to archaeological investigations to ensure that collections remain local and accessible to the Kumeyaay and other interested communities, such as depositing at the San Diego Archaeological Center.
6. All cultural resources should be treated with respect and dignity. No photographs should be taken of any human remains.



### **1.5.7 Hazardous Materials and Wastes**

BMPs will be implemented as standard operating procedures during all construction activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials. The BMPs will include:

1. Recycling of old fence panels will be a part of the Project.
2. Nonhazardous waste materials and other discarded materials, such as construction waste, will be contained until removed from the construction site. Solid waste receptacles will be maintained at the staging areas, and non-hazardous solid waste (trash and waste construction materials) will be collected and deposited in on-site receptacles. Waste materials and other discarded materials contained in these receptacles will be removed from the site as quickly as practicable.
3. All fuels, waste oils, and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein.
4. The refueling of machinery will be completed following accepted industry guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips.
5. Any spill of reportable quantities will be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock, etc.) will be used to absorb and contain the spill. All spills will be reported to the designated CBP point of contact for the Project as well as the appropriate Federal and state agencies.
6. A Spill Prevention, Control, and Countermeasures Plan (SPCCP) will be in place prior to the start of operations, and all personnel will be briefed on the implementation and responsibilities of this plan.
7. All equipment maintenance, laydown, and dispensing of fuel, oil, or any other such activities will occur in the staging area identified for use in this ESP. The designated staging area will be located in such a manner as to prevent runoff from staging areas from entering waters of the United States, including wetlands. All used oil and solvents will be recycled if practicable. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of consistent with U.S. Environmental Protection Agency (EPA) standards.

### **1.5.8 Potential Avoidance and Mitigation for Unavoidable Impacts**

As noted, CBP may implement mitigation measures. The scope or extent of CBP's mitigation will be based on the actual impacts from the Project and available funding. CBP will assess the actual impacts from the Project after it is complete. CBP's assessment will be based on, among other things, feedback from environmental monitors and the final construction footprint. The following sets out the mitigation measures that would be considered by CBP should mitigation be warranted and funds available:

1. CBP may coordinate with the Southern California Wetlands Recovery Project (SCWRP) to further their Regional Strategy and contribute to projects that meet Regional Strategy goals.
2. CBP would consider protection, mitigation, and enhancement activities to benefit the uplands and wetlands of the Tijuana River Valley, such as the following:
  - Avoid and set protective measures for rare upland plant species (*e.g. Dudleya blochmaniae, Dudleya attenuata, Phacelia stellaris, and Atriplex pacifica*) during construction.
  - Implement a 5-year invasive species treatment plan within the area of Project impacts for both upland and wetland habitats.
  - Enhance and restore coastal sage scrub habitat in the uplands and freshwater wetland and saltmarsh in Goat Canyon, Yogurt Canyon, the main channel, and in the Tijuana River Estuary. Opportunities to benefit both habitat types exist along routes previously and currently used by Border Patrol agents and along Monument Road in areas of anticipated improvements.
3. CBP would give preference to direct mitigation but, if additional mitigation measures are necessary and to the extent funding is available, CBP will consider setting funds aside for compensatory mitigation banking. The following is a list of local mitigation banks (suggested by staff from EPA Region 9) that could be used to offset unavoidable impacts to sensitive habitats and aquatic resources:
  - Cornerstones Phase 1- Marron Valley
  - San Miguel Conservation Bank
  - Rancho San Diego- SANDAG
  - Singing Hills Conservation Bank
  - Crestridge Conservation Bank
  - San Vicente Conservation Bank
  - San Luis Rey Conservation Bank
4. As mentioned in measure 3 above, CBP would give preference to direct mitigation, but if additional mitigation is required due to unavoidable impacts to sensitive aquatic resources or habitats and to the extent funding is available, CBP may consider contributing funds toward general and/or out-of-kind restoration opportunities. Potential projects include, but are not limited to, the following:
  - Relevant projects from the Tijuana River Valley Recovery Team (TRVRT) 5-year plan, such as the excavation of the Goat Canyon Sediment Basin or Brown Property, the reclamation of the Nelson Sloan Quarry, the preparation of a Sediment Management Plan for the Tijuana River Valley, or contributions to improvements to Tijuana River Watershed management through the USIBWC.
  - Funding and contributing to the development of a roads and trails management plan for Border Field State Park, which would benefit both wetland and upland habitat. Plans would formalize heavily used routes to deter expansion and use of informal routes through sensitive habitat, provide better route management prescriptions, and increase public access to the park.

**SECTION 2.0**

**DESCRIPTION OF THE PROJECT**

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## 2.0 DESCRIPTION OF THE PROJECT

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DHS and CBP will remove and replace approximately 14 miles of primary pedestrian fence and make necessary Border Infrastructure System (BIS) improvements along the southwestern border of the United States. The majority of the existing primary fence<sup>2</sup> in the Project Area follows the international border between the City of Tijuana, Mexico and the City of San Diego, California (Figure 2.1, Project Location and Segments and Figure 2.2, Project Study Area and Location References). The primary fence is part of the BIS<sup>3</sup> operated by CBP in the USBP San Diego Sector. The existing primary fence, also referred to as the legacy fence, was installed in the 1990s and does not meet current operational needs. The existing primary fence was constructed with reused mid-20<sup>th</sup> century temporary military aircraft landing mats (Photographs 2.1 and 2.2). The perforated metal sheets are too small, have become deteriorated, offer limited cross-border visibility and are no longer adequate for the purpose of fulfilling CBP's mission. The new taller and more substantial bollard-style wall that will replace the legacy fence (Photographs 2.3 and 2.4) is critical to prevent illegal entries into the United States and to achieve operational control of the border.

The Project will include: (1) design, (2) site preparation and material delivery, (3) removal and replacement of the legacy fence, and (4) construction of all-weather road and lighting improvements, as detailed in the following sections.

### 2.1 LOCATION

The Project Area is in the southwestern corner of San Diego County and follows the United States/Mexico International Border. Specifically, it is located directly on the border in Township 18 South, Range 1 West, Section 32; Township 19 South, Range 1 East, Section 6; Township 19 South, Range 1 West, Sections 1–6; and Township 19 South, Range 2 West, Sections 1, 2, and 7–11, using the San Bernardino Meridian on the Imperial Beach OEW, Imperial Beach and Otay Mesa USGS 7.5 minute quadrangles.

The Project Area begins near the Pacific Ocean (just east of Friendship Park) and continues east along the United States/Mexico international border for approximately 14 miles. For the purposes of this analysis, the Project is divided into four primary segments: the Western, Central, and Eastern Segments (Table 2.1), as well as a segment along the northern levee of the Tijuana River from the border west to Dairy Mart Road (Figure 2.3, North Levee Tijuana River Area). The Project Area falls within the USBP San Diego Sector, California. Except for a small section in the care of USIBWC and some staging and access that will occur on state park, county, and city roads, the Project Area is entirely managed by CBP and contains primary and secondary fences, patrol roads, and lighting and surveillance systems. The Project Area does not include security infrastructure elements such as San Ysidro and Otay Mesa POEs<sup>4</sup>, which were previously built out and unnecessary to include in an environmental review.

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<sup>2</sup> Primary Fence: The southernmost fence, on the international border with Mexico. The primary fence defines the southern edge of the City of San Diego California, and the northern edge of the City of Tijuana, BCN.

<sup>3</sup> Border Infrastructure System (BIS) includes the primary fence on the international border, the secondary fence offset 100-300 feet north into the U.S., a tertiary fence, roadways, lighting and surveillance systems, all paralleling the primary fence.

<sup>4</sup> San Ysidro and Otay Mesa ports of entry are the two busiest in the nation.

**Table 2.1 Primary Fence Segments**

Fence Section	Landmarks	Start and Stop Station Markers	Estimated Fence Distance (miles)
Western Segment	Near Pacific Ocean to San Ysidro POE	9+97 to 256 +37	5.25
Northern TJR Levee Segment	Tijuana River to Dairy Mart Road	Separate alignment 300+00 to 317 + 41	0.25
Central Segment	San Ysidro POE to Otay Mesa POE	400+02 to 671 +76	5.5
Eastern Segment	Otay Mesa POE to end (Mile Post 14.25)	683+13 to 887+10	3.5
<b>TOTAL LENGTH</b>			<b>14.5 MILES</b>

## 2.2 DESIGN

The preliminary design meets the project goals and has been informed by numerous technical studies such as engineering, constructability, and environmental evaluations, which included biological and cultural resource assessments. Streams and stormwater also flow through the site, and improved drainage management has been incorporated into the design.

The bollard wall will be a minimum of 18 feet high; however, CBP will install 25 to 30-foot high sections in areas of steep topography or areas where dense housing or conflicting land uses may be present. Most 18-foot high sections of the bollard wall will be supported by concrete walls ranging from two to six feet high, with occasional eight and ten-foot high sections, adding to the overall height. Concrete walls are used to retain grades, so added height is typically only evident on one side of the bollard wall. Stream crossings will require special designs to accommodate water flow while still preventing people from passing through the bollard wall.

Construction of these design elements will generate impacts mainly within the Roosevelt Reservation (a 60-foot wide corridor along the international border established by President Theodore Roosevelt to facilitate border protection) and along the northern levee of the Tijuana River. This 60-foot wide area of impact is described in this document as the Project Area, and the larger Study Area was created during the initial analyses to provide full consideration of impacts within the larger landscape. The Study Area varies in width to a maximum of approximately 350 feet from the United States/Mexico border. Temporary construction impacts may occur within Study Area, and those will be restored and revegetated to pre-construction conditions. See Figure 2.4 for a conceptual cross-section of the Project Area (within the Roosevelt Reservation) and the variable-width Study Area along the international border.

## 2.3 CONSTRUCTION ACCESS, MATERIAL DELIVERY, AND STAGING

The new bollard wall will be prefabricated off-site and then transported to the site by 18-wheel flatbed trucks using pre-approved haul routes. The new bollard wall will arrive on-site as eight to ten-foot wide panels. Each truck will transport an estimated five panels at a time. Each panel will be comprised of eight to ten, six-inch-square (5/16-inch thick) Core-10 steel bollards filled with cement and welded in place by a horizontal steel bar on the bottom and an approximately two-foot-wide steel sheet across the top. The steel

bollards will be spaced approximately six inches apart to allow for cross-border visibility. Each panel is estimated to weigh approximately 3,500 pounds, excluding any below ground materials or concrete.

Two designated primary staging areas will accept large fence panel deliveries, store larger equipment, and house construction materials. Each of the four primary Project segments will also have at least one secondary staging area, and more in the Western Segment, to manage construction in the steeper terrain. The secondary staging areas will be equipped to support nearby construction and crane sites and will have equipment necessary for fence removal and installation.

Access to Project sites will utilize existing roads within the BIS area wherever possible, including federal as well as some state park, county, and city roads. Direct access to some fence locations will require construction of new temporary and permanent access roads leading from existing routes to Project installation sites. Construction along the primary fence alignment will require grading a minimum 15-foot wide corridor along the entire length of the project. In many areas with steep terrain, grading the full Roosevelt Reservation will be required. BMPs will be implemented to consolidate this grading footprint wherever possible.

The Project will install the new bollard wall in place of the old primary pedestrian fence. If there are areas where the fence cannot be replaced in situ, the fence may be offset with prior CBP authorization.

Several material haul routes will provide access to the four primary segments of the bollard wall:

Western: I-5 to Dairy Mart Road, West to Monument Road, to Goat Canyon to security gate.

North Levee: I-5 to Dairy Mart Road, East on Camino De La Plaza and adjacent levee road.

Central: I- 805 to San Ysidro Blvd., East to Rail Court to Robert's Gate security check.

Eastern: I-905 to Siempre Viva Road, East to Enrico Fermi Dr., South to Via De La Amistad South to security gate.

The fence is about 85,000 feet long and will require approximately 2,000 fence panel deliveries (40-50 linear feet per truck), a similar number of concrete trucks making deliveries, a similar number of gravel and asphalt deliveries for road construction, plus mobilization and demobilization of contractor equipment. In all, approximately 7,000 – 8,000 large truck round trips for material delivery are anticipated for the project. Use of railroads and ships for long hauls may be required.

## **2.4 SITE PREPARATION**

Site preparation includes grading of staging areas, installation of limited additional construction access roads, and construction of crane operations pads (Figure 2.5 Project Description and Environmental Constraints Diagrams [pages 1-8]). BMPs such as temporary fencing around protected resources and erosion control measures will be necessary, as will biological surveys if construction takes place during the nesting season (from March through September every year). BMPs will limit impacts to all resources including (but not limited to) water, wetland, wildlife, botanical, cultural, and other resources. Specific

BMPs, as well as a plant salvaging operation, will be implemented prior to and during construction to ensure minimal disturbance to the Study Area.

In areas of steep terrain, construction cranes may be required for removal and installation of the primary fence. Recommended crane pads have been identified and smaller trucks may be required to deliver panels up steep roads. In flat areas construction access is limited to narrow corridors along the fence.

All activities associated with implementation of the Project have been designed pursuant to the constraints identified in the Biological Survey Report prepared for the Project. These constraints to on-site preparation and construction ensure impacts to the biological resources present are minimized to the extent practicable.

## **2.5 REMOVAL AND REPLACEMENT OF LEGACY FENCE WITH BOLLARD WALL**

The removal of legacy fence and installation of the bollard wall will be conducted in sections. As each section of the existing legacy fence is removed, a new section of bollard wall will be installed. Each new section of bollard wall will be placed into position and secured below ground. In steep or difficult to access areas, work may be supported with a crane, track-mounted drilling rigs, concrete pumps, pile drivers, and excavators. In flat areas smaller boom-trucks and lifts may be used.

The Project Area includes areas that cross streams and areas of steep terrain. In some cases the legacy fence has been installed on top of cement culverts, in which case some drainage modifications or fence realignments may be required. Recycling of the existing legacy fence will be the responsibility of the construction contractor.

## **2.6 TIJUANA RIVER, NORTHERN LEVEE FENCE REMOVAL AND REPLACEMENT**

The Project will also replace a portion of the legacy fence on the eastern extent of the northern levee along the Tijuana River in the United States. Access follows Camino De La Plaza in San Ysidro, just west of the San Ysidro POE. Approximately 0.2 miles of the existing fence in this location will also be replaced to match the bollard wall. Prior to removal and installation of the bollard wall, the site will need to be cleared. Removal and installation will follow the same methods described in Section 2.6 above, along with the installation of some additional infrastructure at the same site. Once installed, the site will be revegetated and returned to conditions similar to those currently existing.

## **2.7 ALL-WEATHER ROAD AND LIGHTING IMPROVEMENTS**

Several access roads are present within the Project Area; however, not all are wide enough to allow for crane or truck access. A 15-foot wide all-weather road will be constructed along the primary pedestrian fence for the purposes of facilitating fence replacement, maintenance, and later use by USBP. This all-weather road is anticipated to be constructed along the entire 14-mile length of the site. Steep areas will be paved with concrete and more gentle slopes will be finished with a gravel surface. Most grading will occur within the Roosevelt Reservation, and will be minimized to the extent feasible. Drainage improvements will be constructed throughout the Project Area as needed.



## **2.8 CONSTRUCTION SCHEDULE**

It is anticipated that construction will occur seven days per week from 7:00 am to 7:00 pm, with some exceptions where work may be scheduled 24 hours per day. Construction is expected to last from June 2018 until January 2019 and take approximately 240 work days to complete. There is potential for nighttime construction to occur as well. Border security lighting exists throughout the Project Area and will light the area to allow for construction at night. Existing lighting will be replaced incrementally with LED bulbs, and in some cases lower light poles.

## **2.9 ENVIRONMENTAL CONSIDERATIONS**

The following Sections 3 through 12 address numerous environmental factors to be considered during final design and implementation of the Fence Replacement Project.

## **2.10 PROJECT DESCRIPTION FIGURES AND PHOTOGRAPHS**

Figure 2.1 Project Location

Figure 2.2 Project Study Area and Location References (11x17)

Photographs 2.1 and 2.2: Existing Primary Fence

Photographs 2.3 and 2.4: Proposed Primary Fence Types

Figure 2.3: North Levee Tijuana River Area

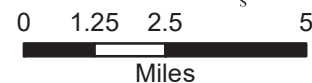
Figure 2.4: San Diego Sector Study Area- Typical Cross-Section

Figure 2.5: Project Description and Environmental Constraints Diagrams (Pages 1-8)

The Project Description and Environmental Constraints Diagrams consolidate many of the primary environmental considerations into a graphic overlay with the Project proposal.



Figure 2.1 Project Location and Segments

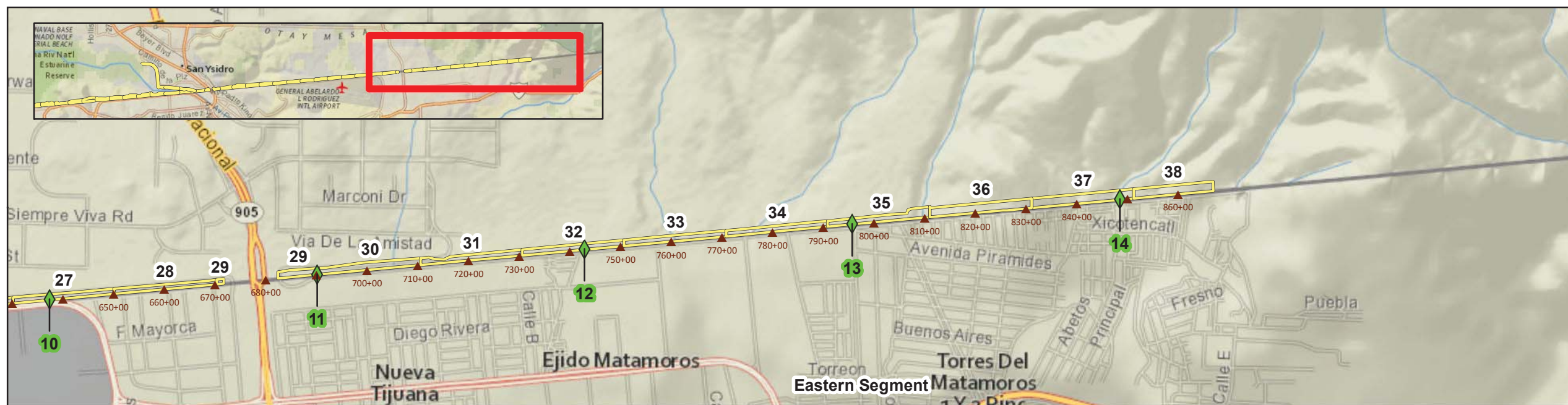
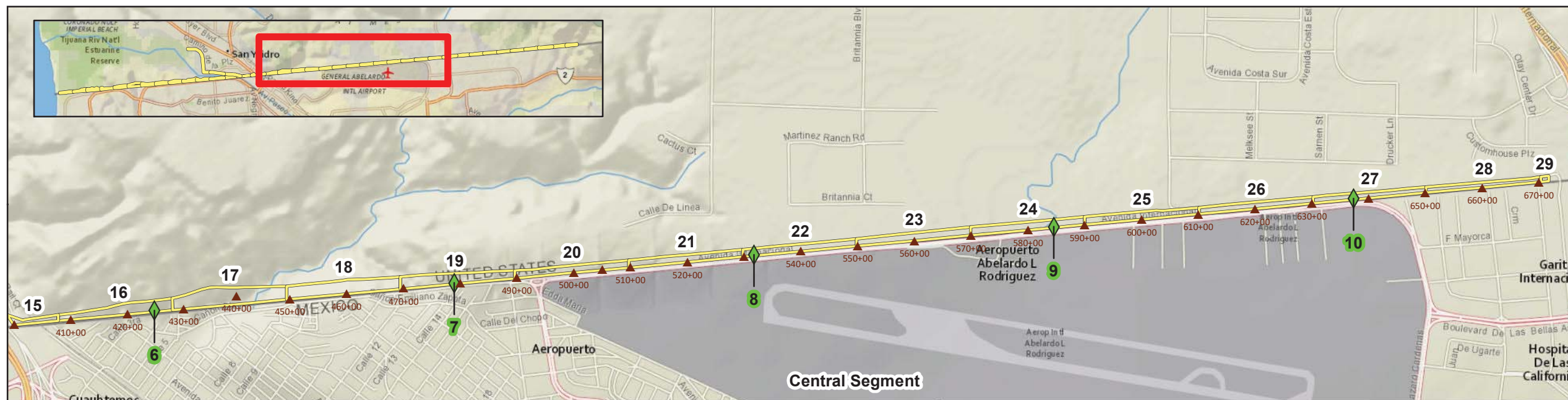


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 Map Prepared By: WRA pkobylarz  
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 Data Source(s): WRA

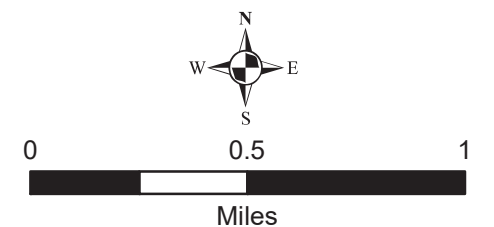
San Diego Sector Fence Replacement Project

San Diego Sector  
Fence Replacement Project  
Environmental Sustainability Plan

Figure 2.2. Study Area and Location References



- Env. Constraints Segment #
- ▲ 115+00 Engineering Plans Station Numbers
- ◆ 10 Mile Marker



Map Prepared Date: 4/23/2018  
Map Prepared By: pkobylarz  
Base Source: Esri Streaming - Nat. Geo.  
Data Source(s): WRA

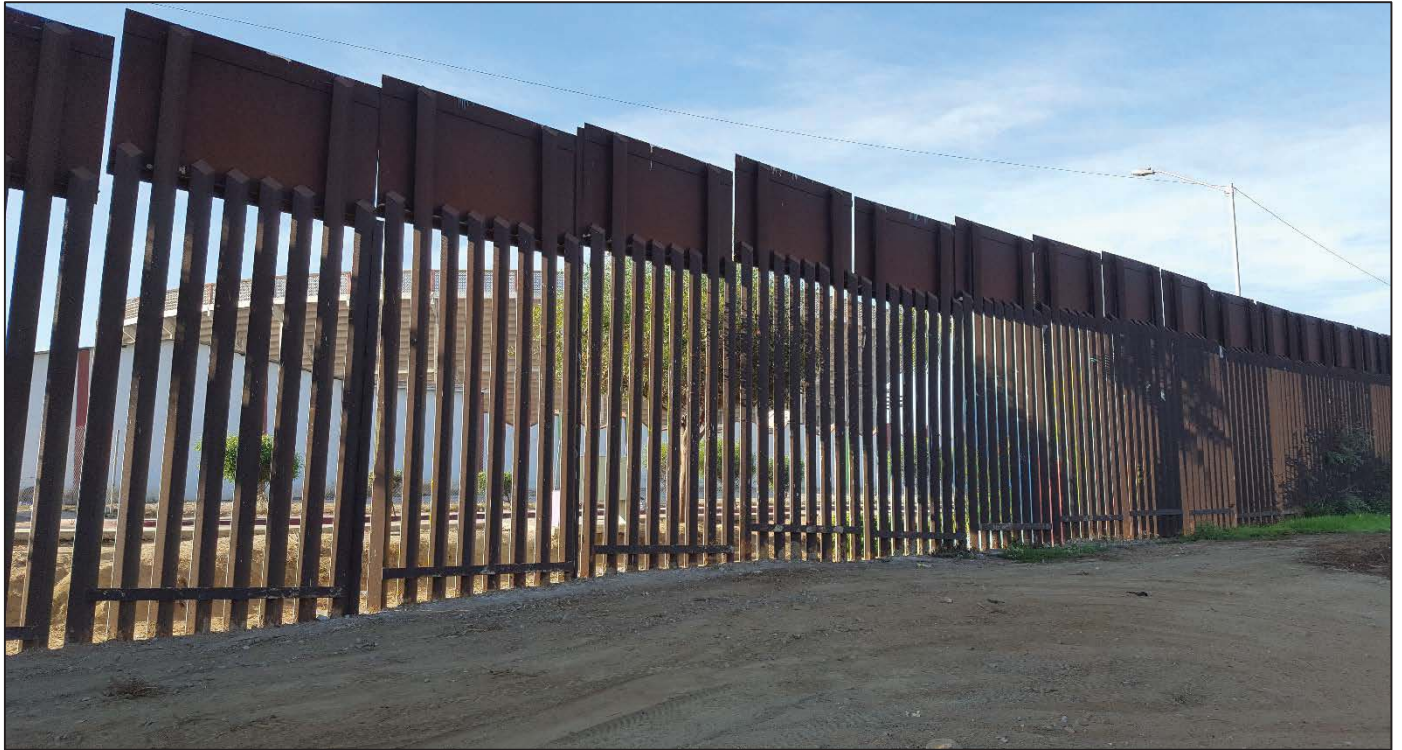




**Photograph 2.1 Existing Primary Fence. View of the landing mat style fence planned for removal.**



**Photograph 2.2 Existing Primary Fence. View of extent of existing primary fence in the Project Area.**



**Photograph 2.3 Proposed Primary Fence Types. Example of proposed bollard style fence installed at west end of Study Area.**



**Photograph 2.4 Proposed Primary Fence Types. Additional example of bollard style fence installed at west end of Study Area.**



Figure 2.3 North Levee Tijuana River Area



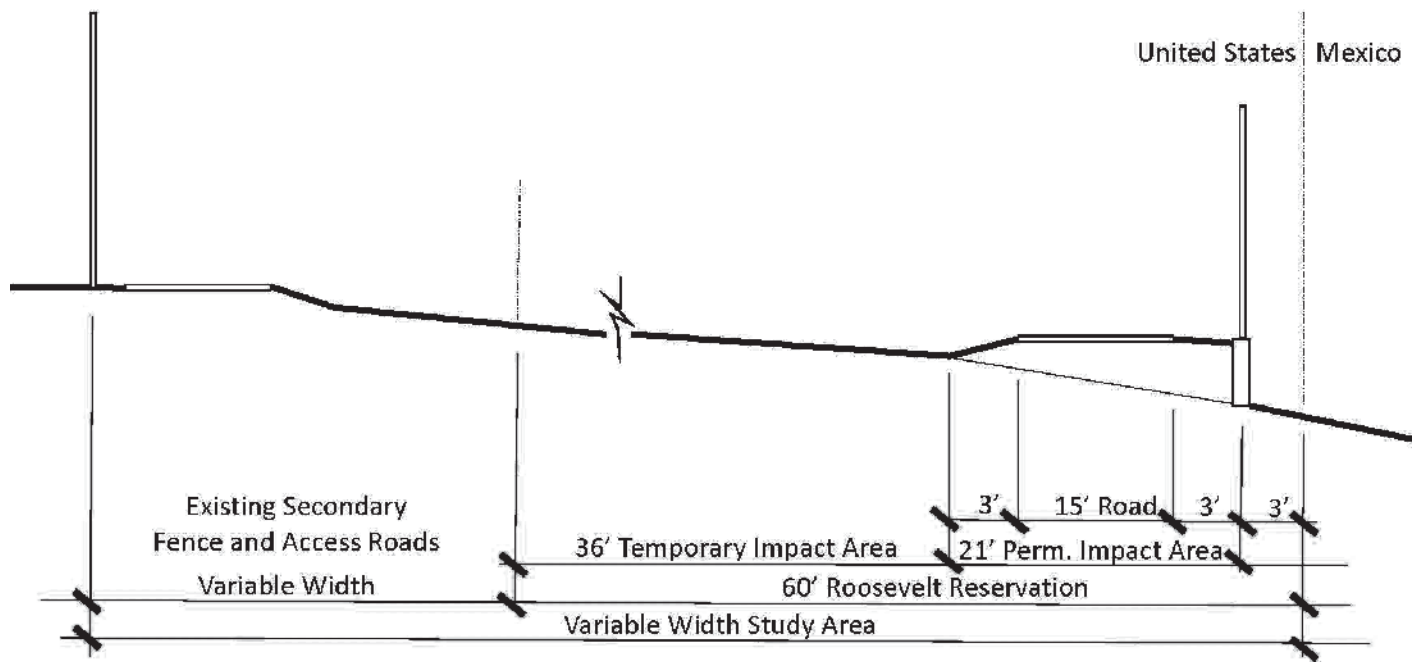
0 500 1,000 2,000 Feet

San Diego Sector Fence Replacement Project

Map Prepared Date: 11/6/2017  
 Map Prepared By: pkobylarz  
 Base Source: Esri Streaming - NAIP 2014  
 Data Source(s): WRA







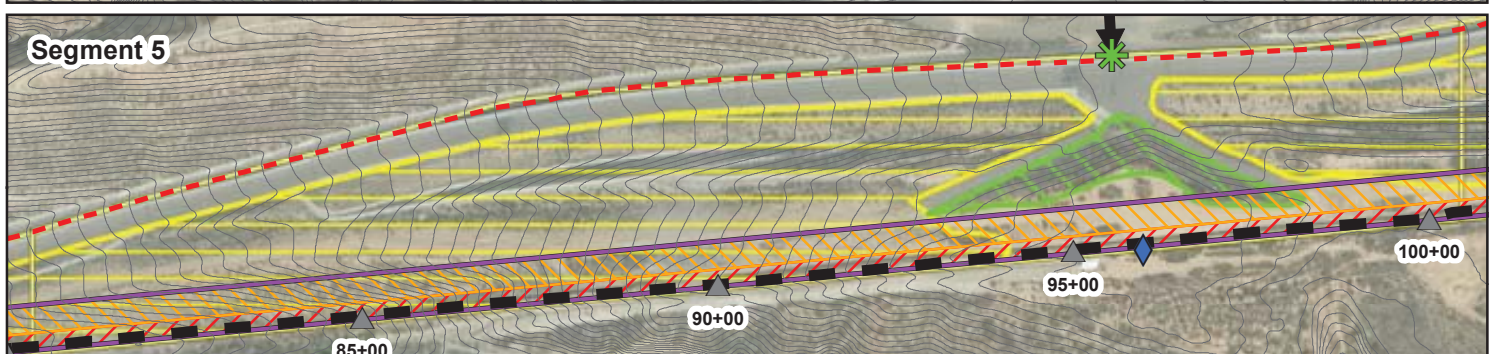
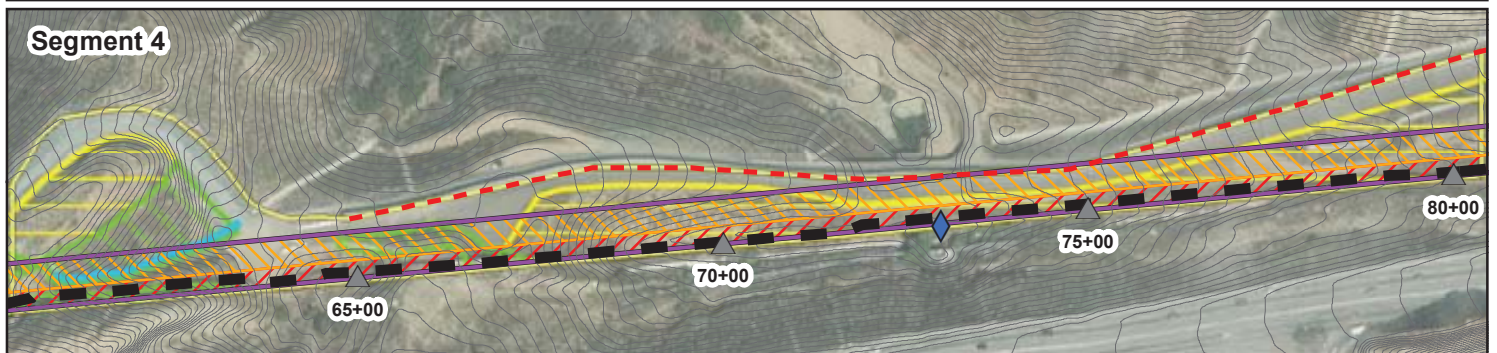
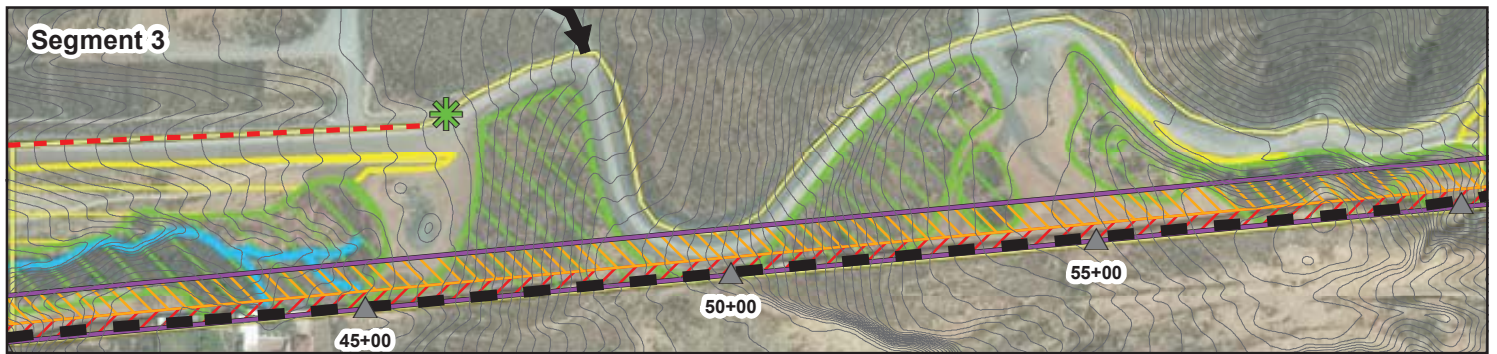
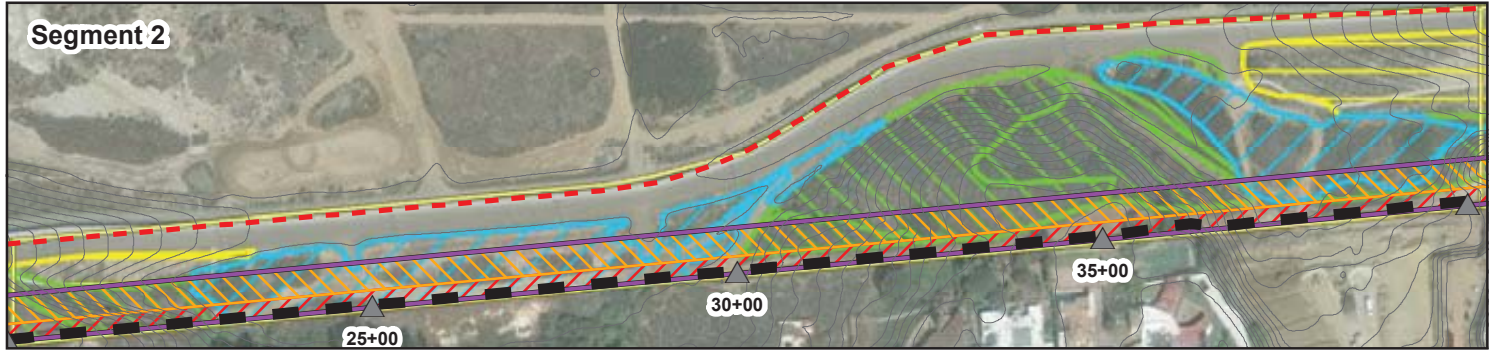
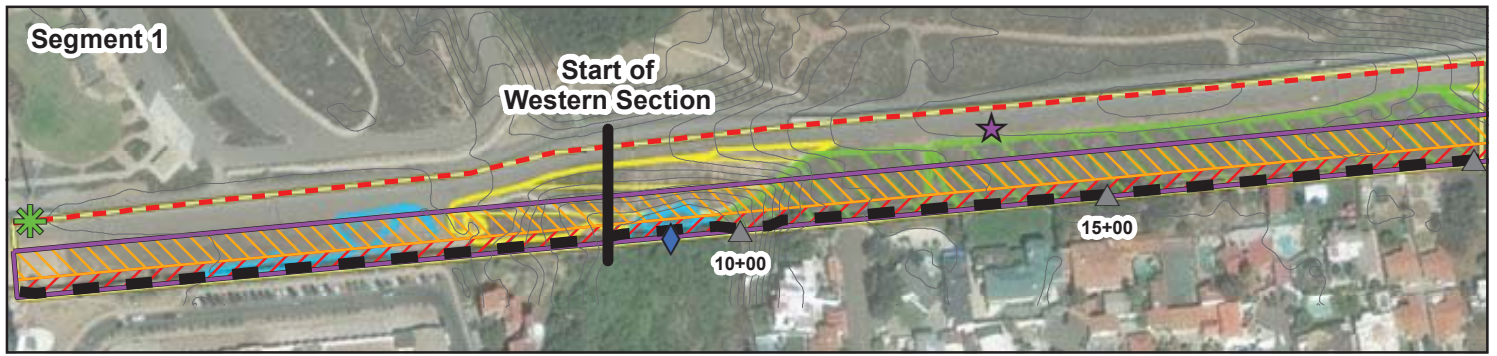
**SAN DIEGO SECTOR STUDY AREA - TYPICAL CROSS SECTION**

Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: pkobylarz, 4/23/2018

## Figure 2.4. San Diego Sector Study Area Typical Cross-Section

San Diego Sector Fence Replacement Project





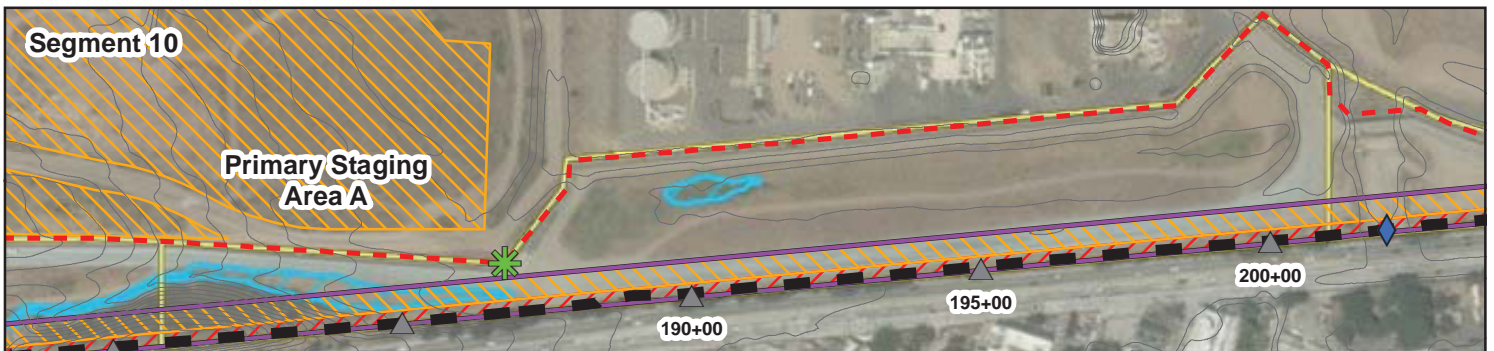
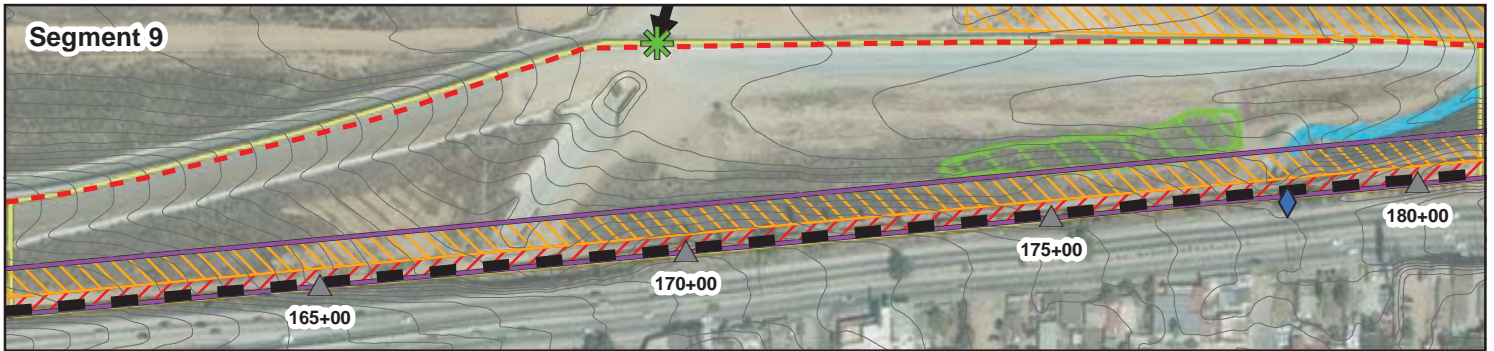
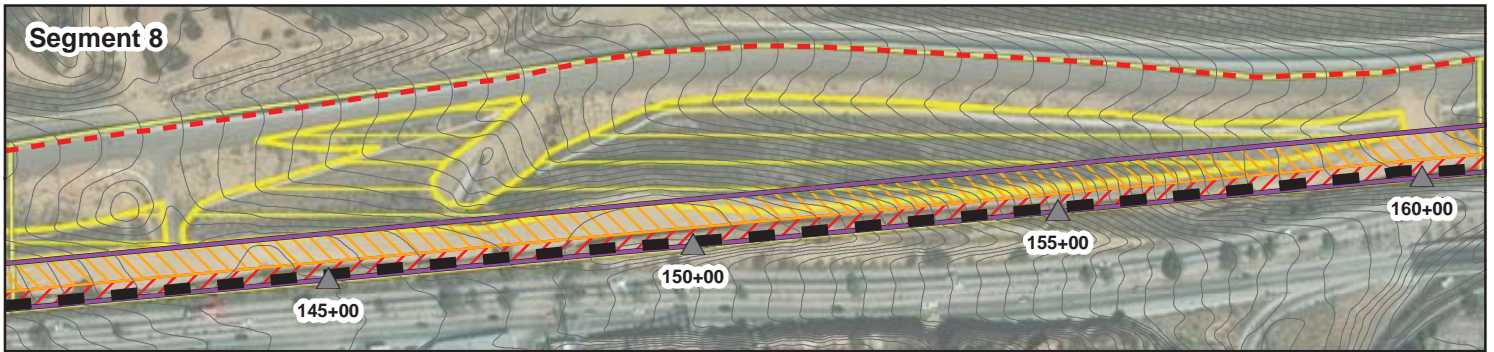
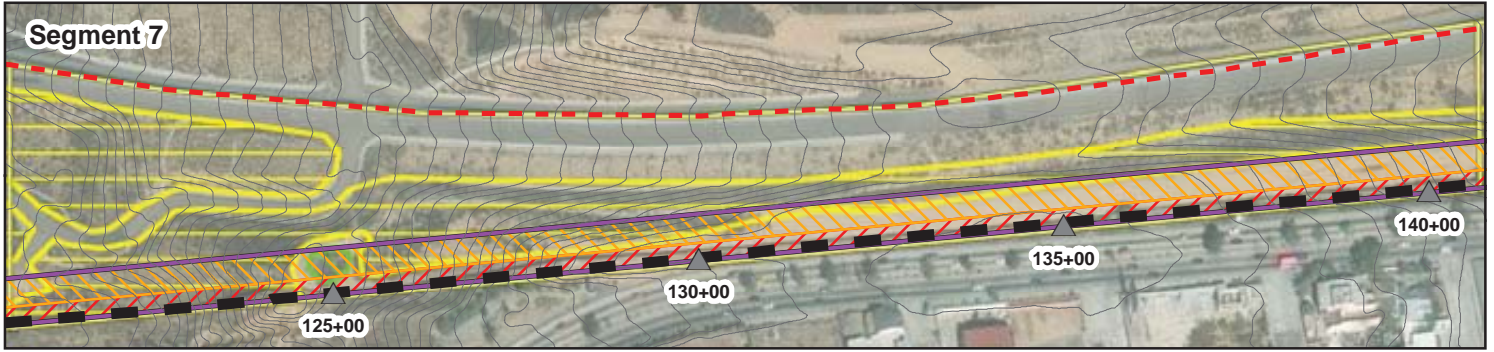
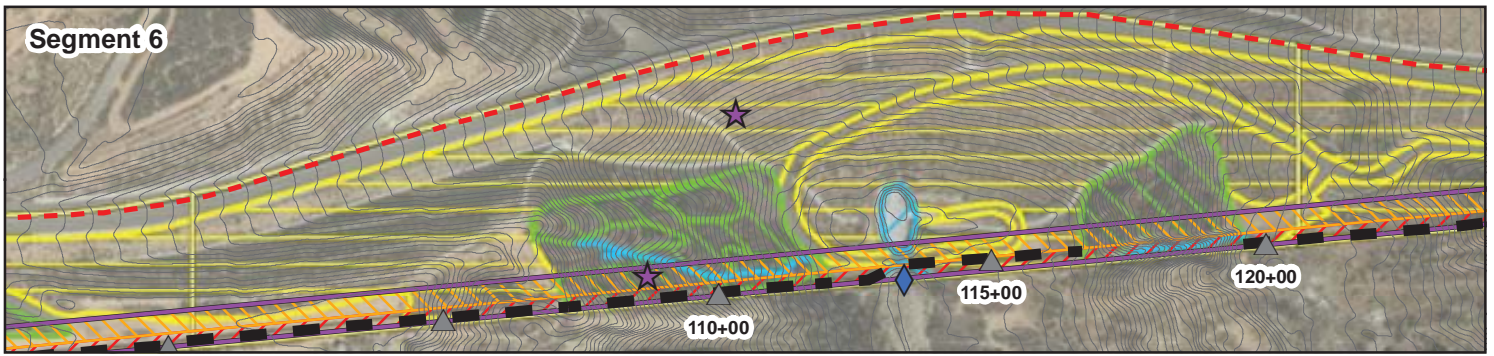
**Figure 2.5 Project Description and Environmental Constraints**  
Page 1



- Existing Border Infrastructure**
- Primary Fence
  - - - Secondary Fence
  - ✱ Access Gates
  - ➔ Access Routes
  - Roosevelt Reservation

- Site Features**
- ◆ Stream Crossing
  - ▭ Proposed Stream Revetments
  - ▲ 500' Station Numbers
  - ★ Rare Bird Observations
  - 5' Contours

- Constraints**
- ▭ Wetlands/Waters
  - ▭ Sensitive Biological Communities
  - ▭ Sensitive Restored Vegetation Area
- Project Construction Areas**
- ▭ Permanent Impact Area (0' to 21')
  - ▭ Temporary Impact Area (21' to 60')



**Figure 2.5 Project Description and Environmental Constraints**

Page 2



**Existing Border Infrastructure**

- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

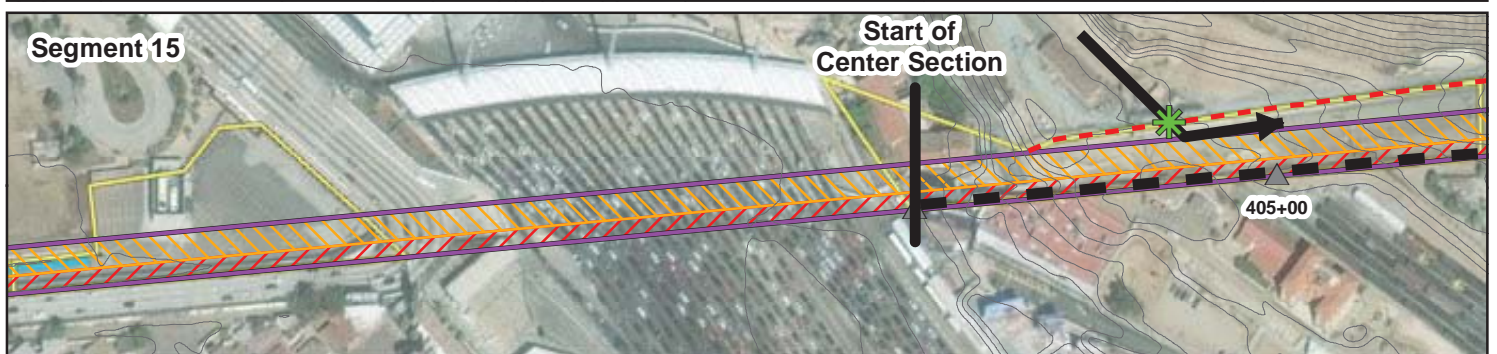
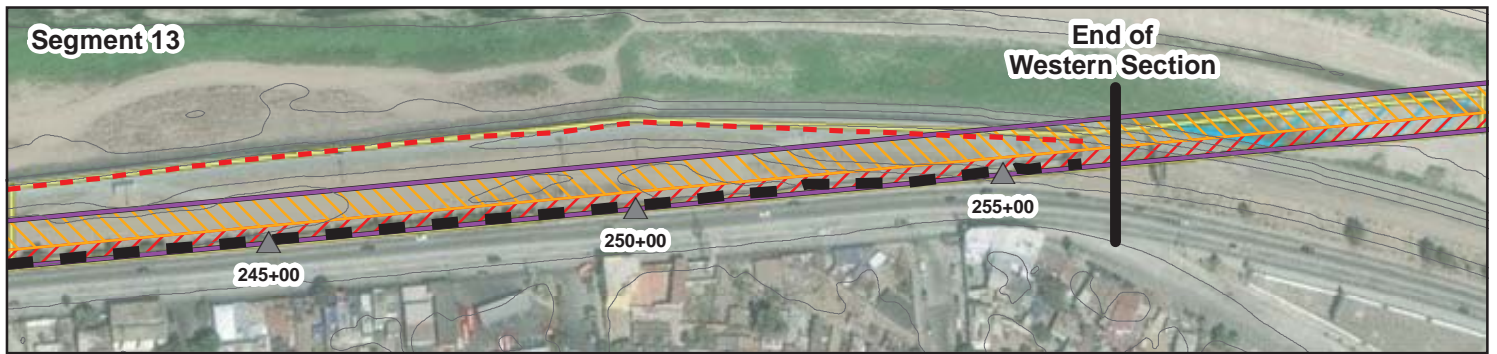
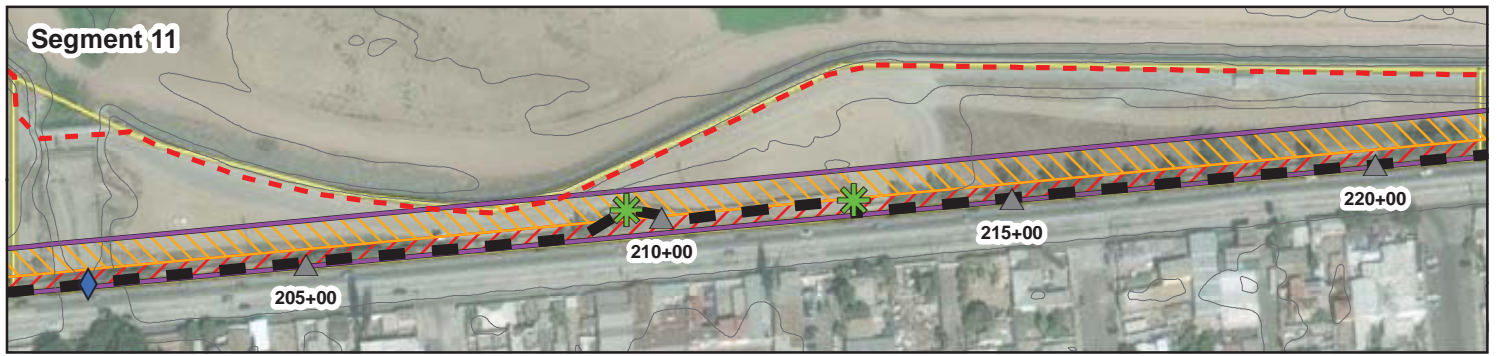
**Site Features**

- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

**Constraints**

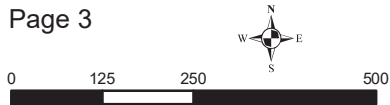
- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')

San Diego Sector Fence Replacement Project



**Figure 2.5 Project Description and Environmental Constraints**

Page 3



**Existing Border Infrastructure**

- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

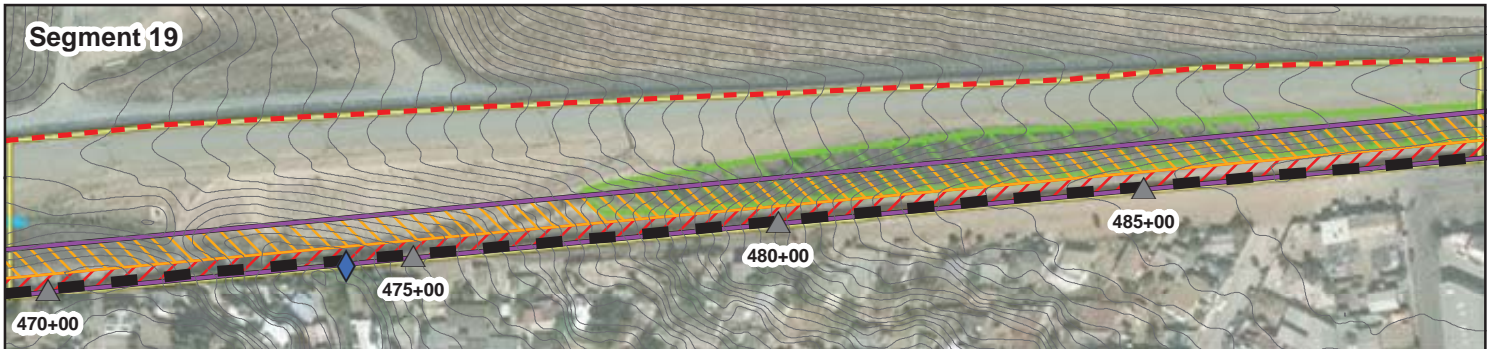
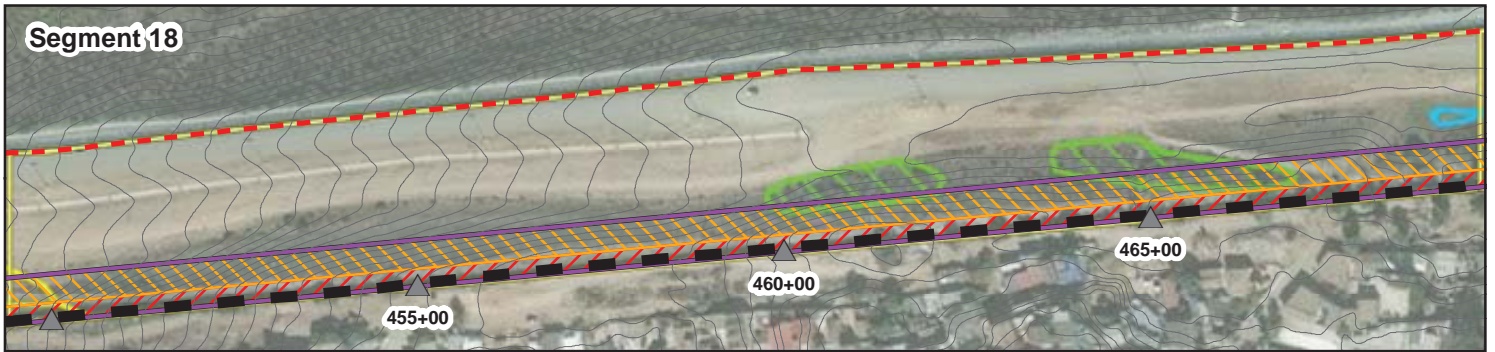
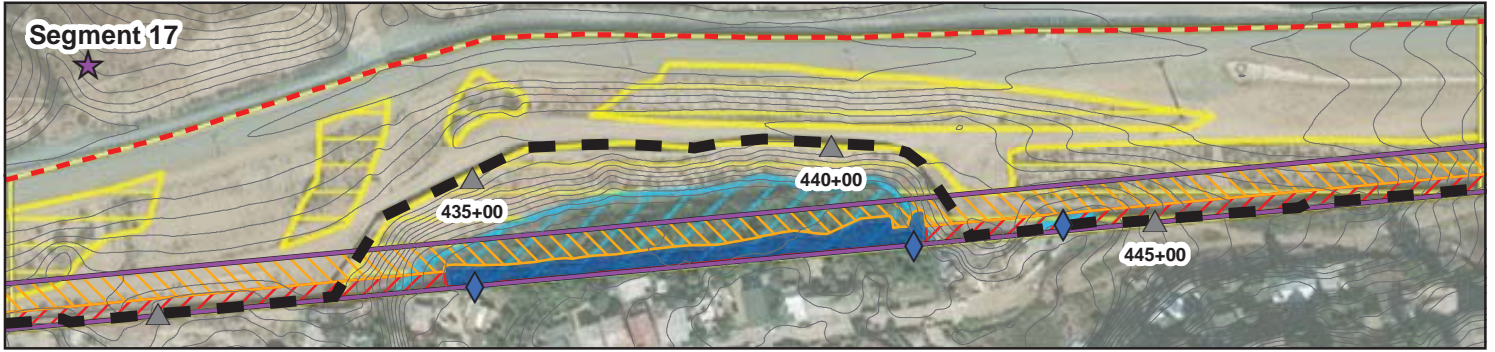
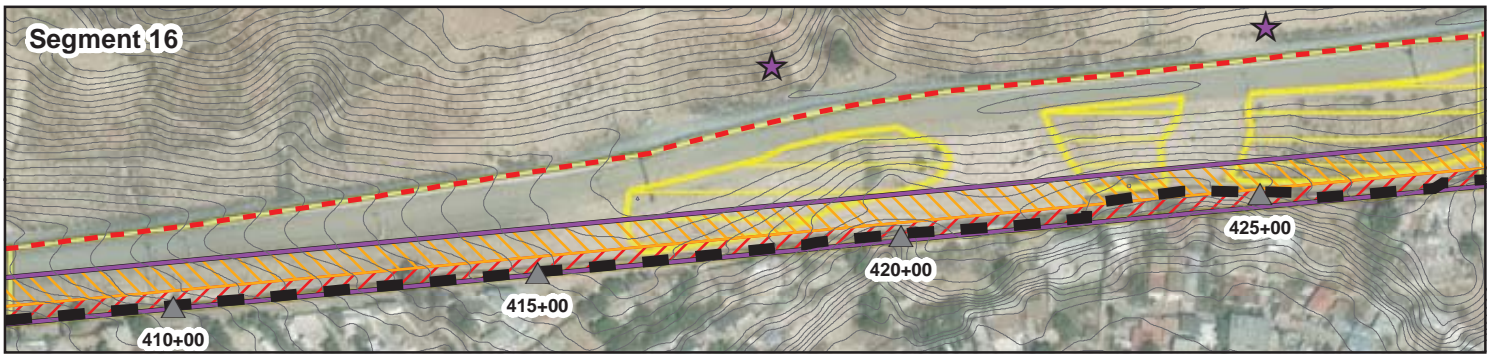
**Site Features**

- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

**Constraints**

- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')

San Diego Sector Fence Replacement Project



**Figure 2.5 Project Description and Environmental Constraints**

Page 4



**Existing Border Infrastructure**

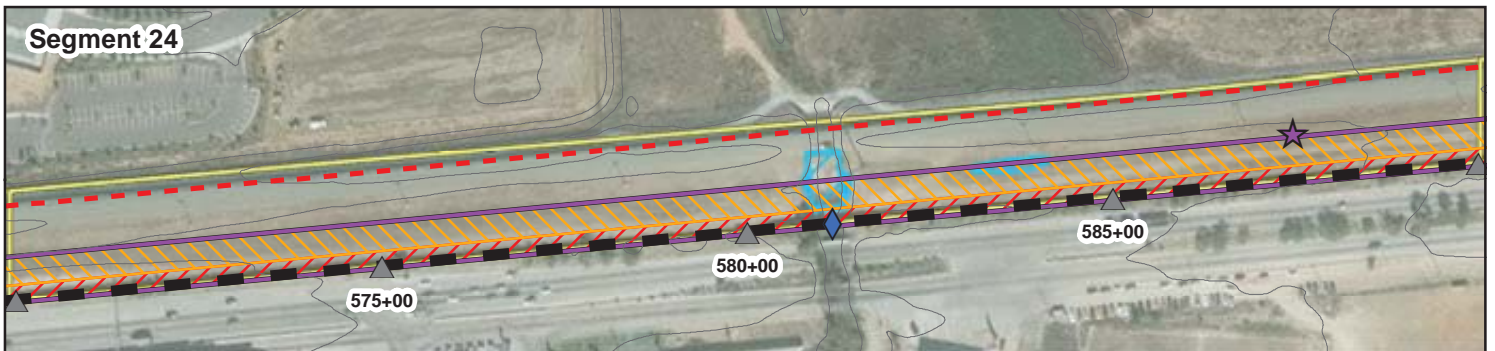
- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

**Site Features**

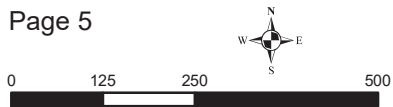
- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

**Constraints**

- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')



**Figure 2.5 Project Description and Environmental Constraints**  
Page 5



**Existing Border Infrastructure**

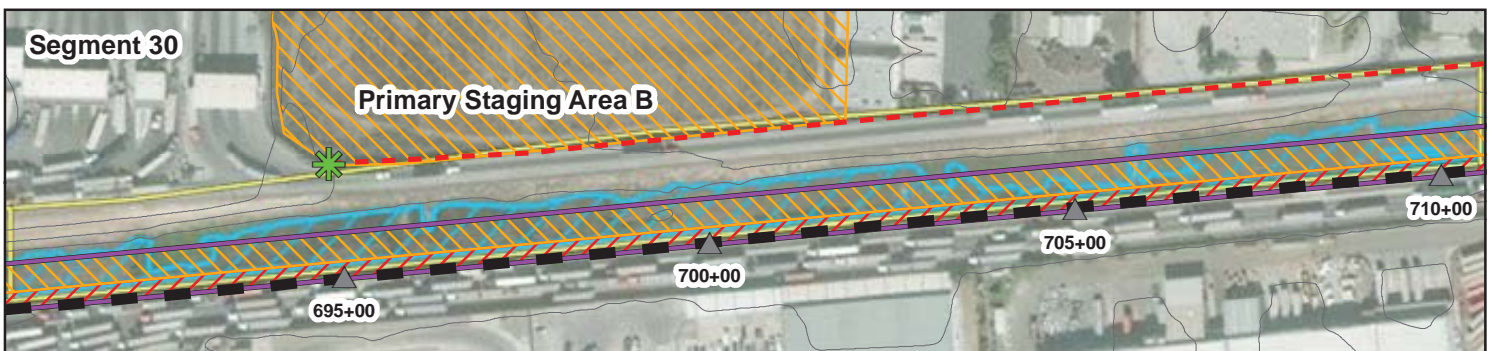
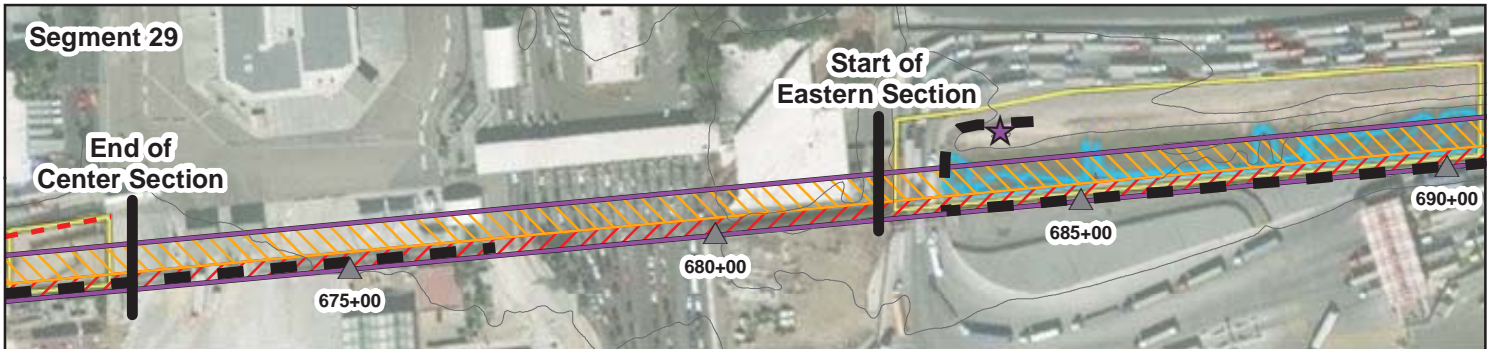
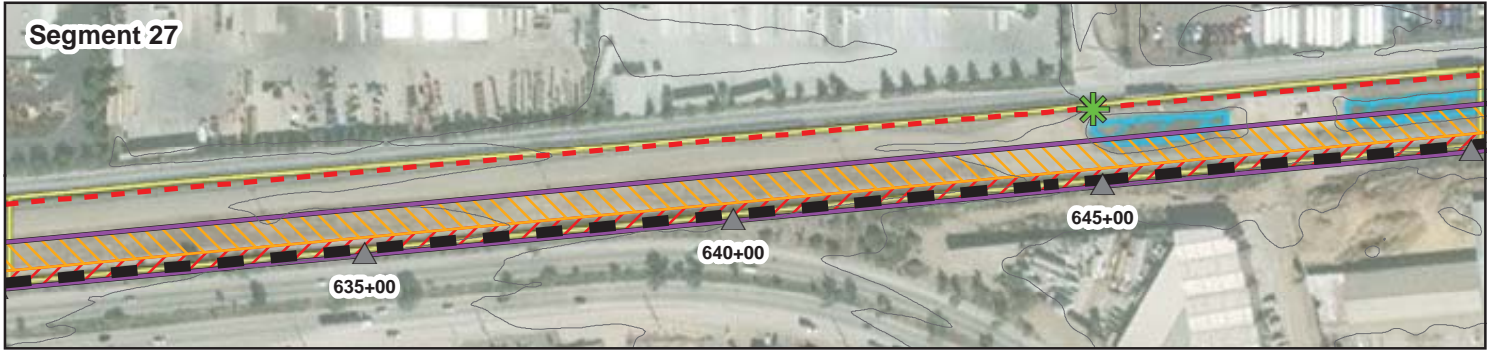
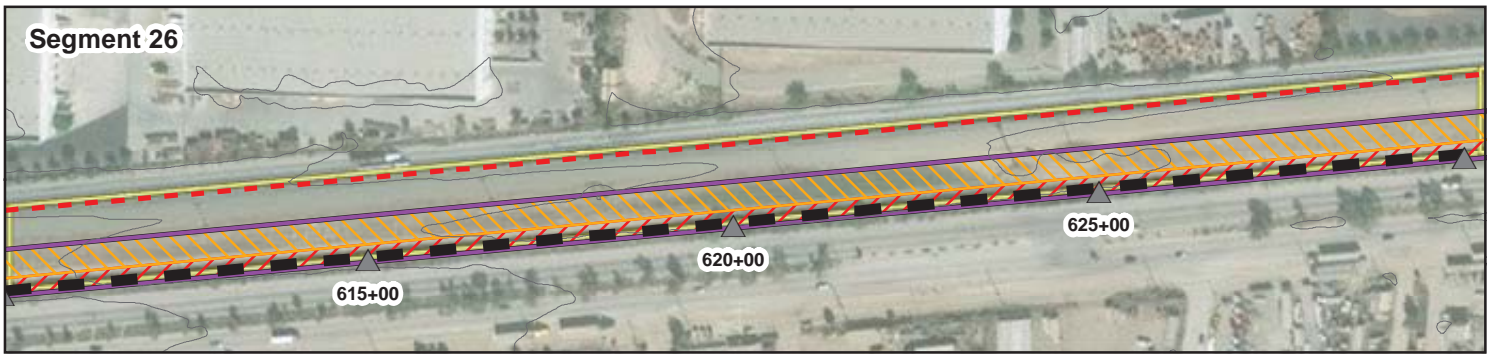
- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

**Site Features**

- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

**Constraints**

- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')



**Figure 2.5 Project Description and Environmental Constraints**

Page 6



**Existing Border Infrastructure**

- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

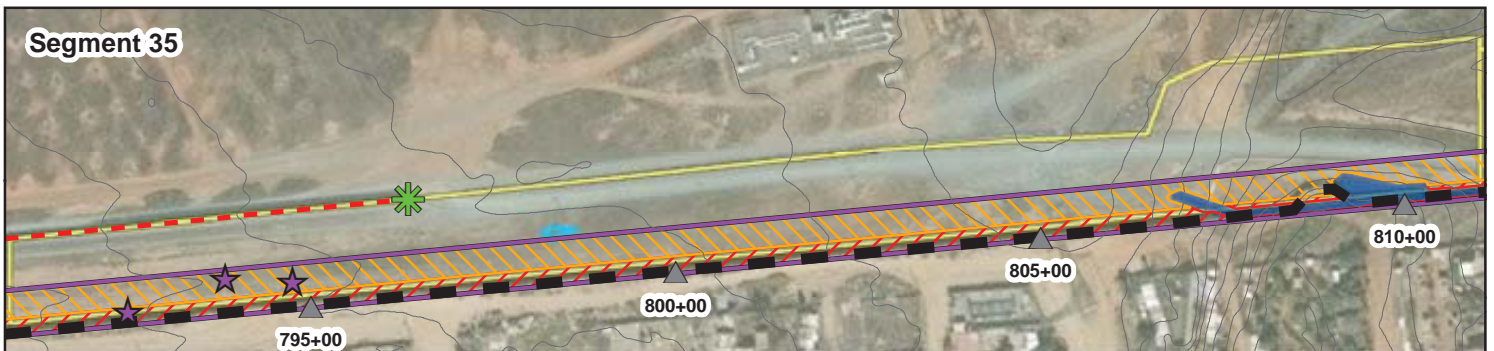
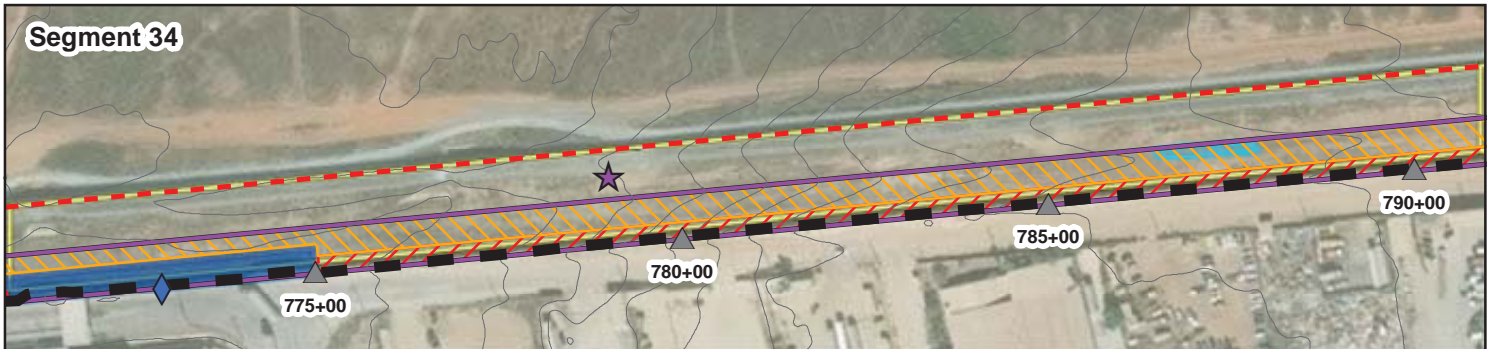
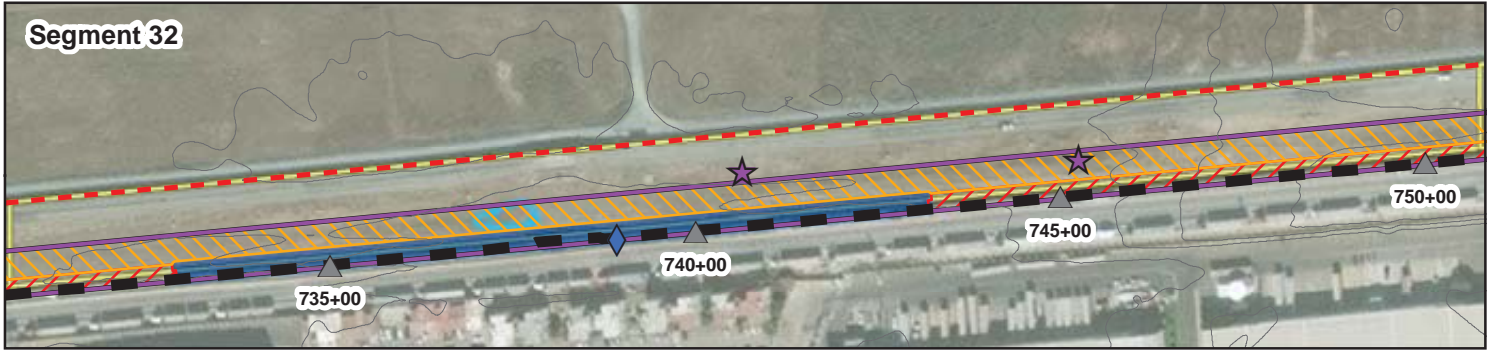
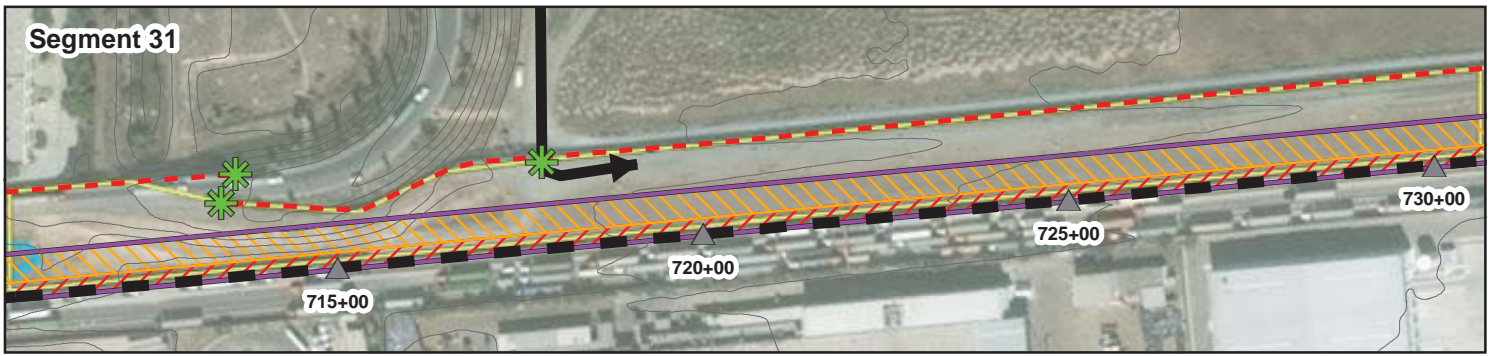
**Site Features**

- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

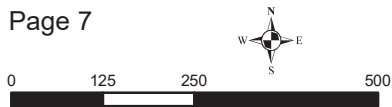
**Constraints**

- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')





**Figure 2.5 Project Description and Environmental Constraints**  
Page 7



**Existing Border Infrastructure**

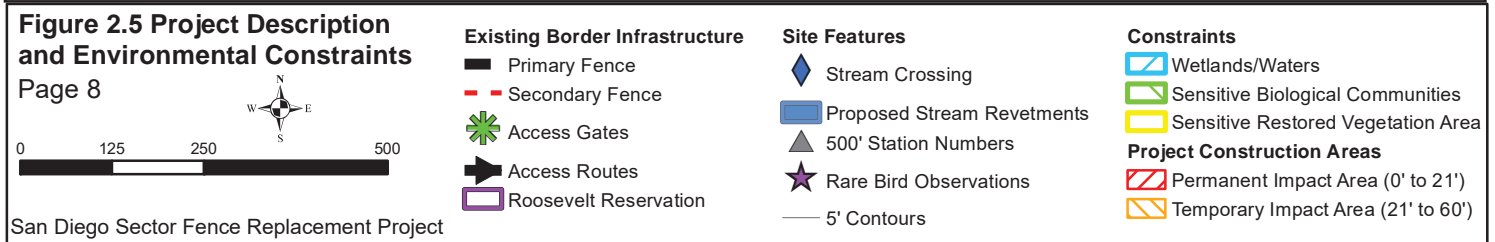
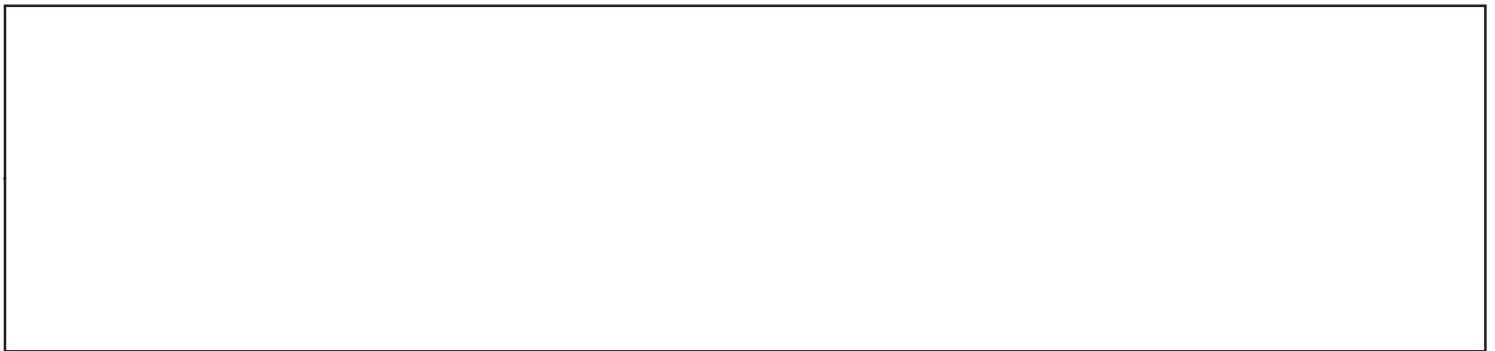
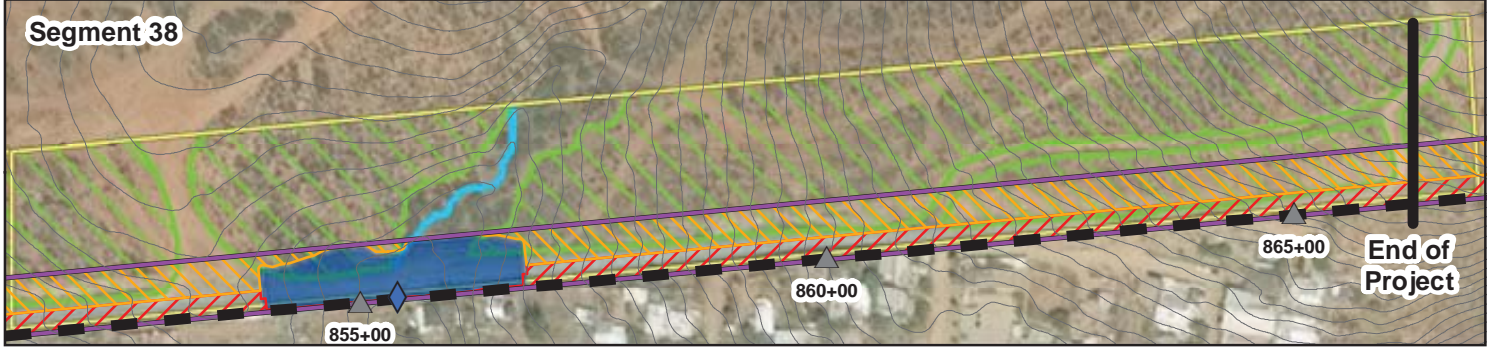
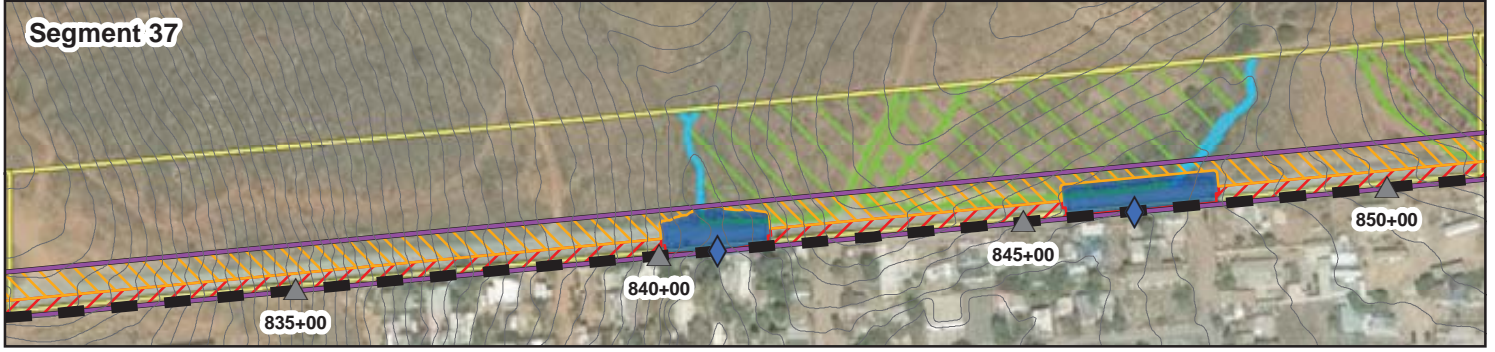
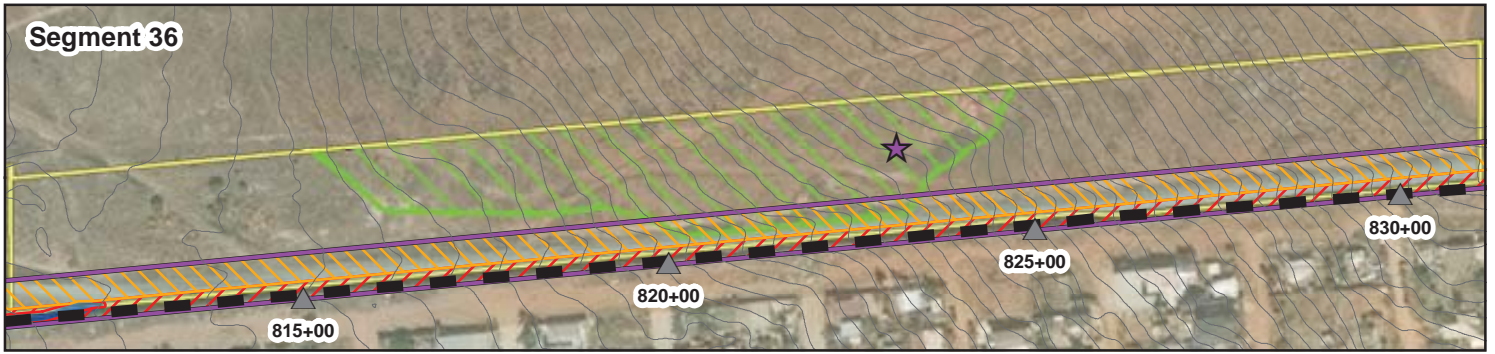
- Primary Fence
- Secondary Fence
- Access Gates
- Access Routes
- Roosevelt Reservation

**Site Features**

- Stream Crossing
- Proposed Stream Revetments
- 500' Station Numbers
- Rare Bird Observations
- 5' Contours

**Constraints**

- Wetlands/Waters
- Sensitive Biological Communities
- Sensitive Restored Vegetation Area
- Project Construction Areas**
- Permanent Impact Area (0' to 21')
- Temporary Impact Area (21' to 60')



**SECTION 3.0**

**AIR QUALITY**

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## 3.0 AIR QUALITY

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### 3.1 AFFECTED ENVIRONMENT

Pursuant to the DHS Secretary's waiver, CBP no longer has any specific legal obligations under the Clean Air Act (CAA). However, CBP recognizes the importance of environmental stewardship and has applied the appropriate standards and guidelines associated with the CAA as the basis for evaluating potential environmental impacts and implementing appropriate BMPs in regard to air quality.

The CAA required the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The NAAQS include primary and secondary standards. Primary standards provide public health protection, including the health of "sensitive" populations. Secondary standards provide public welfare protections against decreased visibility and damage to animals, crops, and buildings. These standards are applied to six principal pollutants, also known as criteria pollutants, which include Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO<sub>2</sub>), Ozone (O<sub>3</sub>), Particulate Matter (PM<sub>2.5</sub>, PM<sub>10</sub>), and Sulfur Dioxide (SO<sub>2</sub>). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety. The NAAQS are located in Table 3-1 below.

Areas that do not meet these NAAQS standards, primary or secondary, are considered nonattainment areas; while areas that meet both the primary and secondary standards are known as attainment areas. For Federal projects, such as the planned Project, the Federal Conformity Rule dictates criteria for conformity determinations. The Federal Conformity Rule was first published in 1993 by the EPA, following the passage of the CAA in 1990. The rule mandates that a conformity analysis must be used to determine whether a Federal action meets the requirements of the general conformity rule. It requires the responsible Federal agency to evaluate the nature of a proposed action and calculate air pollutant emissions as a result of the proposed action. Per the waiver, the CBP is not required to comply with the General Conformity Rule.

The Federal *de minimus* (or minimum) threshold emission rates were established by the EPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to substantially affect air quality. Table 3-2 represents these thresholds by regulated pollutant. As shown in Table 3-2, the *de minimis* thresholds vary depending on the severity of the nonattainment area classification<sup>1</sup>.

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action resulted in an increase of a nonattainment or maintenance area's emissions inventory above the *de minimis* threshold levels, established in 40 CFR 93.153(b), for individual nonattainment pollutants or for pollutants for which the area has been re-designated as a maintenance area.

The San Diego Air Basin is comprised of a single air district, the San Diego County Air Pollution Control District, which includes all of San Diego County. The air basin is currently designated by the EPA as a

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<sup>1</sup> *Electronic Code of Federal Regulations*. 2017. Title 40 Chapter I Subchapter C Part 93. Available at: [https://www.ecfr.gov/cgi-bin/text-idx?SID=2f19c374f01438b8787cf80e8c4cea43&mc=true&node=pt40.20.93&rgn=div5#se40.20.93\\_1153](https://www.ecfr.gov/cgi-bin/text-idx?SID=2f19c374f01438b8787cf80e8c4cea43&mc=true&node=pt40.20.93&rgn=div5#se40.20.93_1153)

nonattainment area for the 8-hour O<sub>3</sub> classification and a portion of the County is designated as a maintenance area for Carbon Monoxide<sup>2</sup>. The California Air Resources Board (CARB) classifies San Diego County as nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub><sup>3</sup>.

### *Greenhouse Gases and Climate Change*

Global climate change refers to a change in the average weather on the earth. Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. They include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), fluorinated gases including chlorofluorocarbons (CFC) and hydrofluorocarbons (HFC), halons, as well as ground-level O<sub>3</sub>. Although GHG emissions are not currently regulated under the CAA, the USEPA has indicated that GHG emissions and climate change are issues that need to be considered. An Executive Order<sup>4</sup> rescinded the guidance provided in a Council on Environmental Quality (CEQ) memorandum regarding the approach to meaningful GHG decision-making analyses. Pursuant to the Executive Order, further analysis of GHG impacts from the Project is not required.

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<sup>2</sup> United States Environmental Protection Agency. 2017. *Nonattainment Areas for Criteria Pollutants (Green Book)*. Available at: <https://www.epa.gov/green-book>

<sup>3</sup> California Air Resources Board. 2017. *Area Designations Maps/State and National*. Available at: <https://www.arb.ca.gov/desig/adm/adm.htm>

<sup>4</sup> Executive Order, *Promoting Energy Independence and Economic Growth*. March 28, 2017

**Table 3.1 National Ambient Air Quality Standards**

Pollutant		Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	8 hours	9 ppm	Not to be exceeded more than once a year
			1 hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3 month average	0.15 µg/m <sup>3(1)</sup>	Not to be exceeded
Nitrogen Dioxide (NO <sub>2</sub> )		Primary	1 hour	100 ppb	98 <sup>th</sup> percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb <sup>(2)</sup>	Annual Mean
Ozone (O <sub>3</sub> )		Primary and Secondary	8 hours	0.070 ppm <sup>(3)</sup>	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Primary Pollution (PM)	PM <sub>2.5</sub>	Primary	1 year	12.0 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
		Primary and Secondary	24 hours	35 µg/m <sup>3</sup>	98 <sup>th</sup> percentile, averages over 3 years
	PM <sub>10</sub>	Primary and Secondary	24 hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO <sub>2</sub> )		Primary	1 hour	75 ppb <sup>(4)</sup>	99 <sup>th</sup> percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plan to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m<sup>3</sup> as a calendar quarter average) also remain in effect.

(2) The level of annual NO<sub>2</sub> standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard.

(3) Final; Rule signed October 1, 2015, and effective December 20, 2015. The previous (2008) O<sub>3</sub> standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO<sub>2</sub> standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO<sub>2</sub> standards or is not meeting the requirements of a SIP call under the previous SO<sub>2</sub> standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

**Table 3.2 Conformity *de minimis* Emissions Thresholds**

<b>Pollutant</b>	<b>Status</b>	<b>Classification</b>	<b><i>de minimis</i> limit tons / year (tpy)</b>
Ozone	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO <sub>x</sub> )
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO <sub>x</sub> )
		Outside ozone transport region	100
CO	Nonattainment/ maintenance	All	100
PM <sub>10</sub>	Nonattainment/ maintenance	All	100
PM <sub>2.5</sub> (Measured directly, as SO <sub>2</sub> or as NO <sub>x</sub> )	Nonattainment/ maintenance	All	100
SO <sub>2</sub>	Nonattainment/ maintenance	All	100
NO <sub>x</sub>	Nonattainment/ maintenance	All	100

Source: 40 CFR 93.153

### 3.2 ENVIRONMENTAL CONSEQUENCES

Air pollution would be expected to increase during construction of the Project. The construction phase would generate air pollutant emissions as a result of transporting materials, grading, compacting, trenching, pouring concrete, and other various activities. The primary criteria pollutants of concern during the construction phase would be related to CO, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions, although emissions of all criteria pollutants would result from the combustion of fuels from on-road haul trucks transporting materials and construction commuter emissions. Soil disturbance would contribute to increased PM emissions from vehicles and other activities would result in fugitive dust emissions and would be greatest during the initial site preparation. Levels of fugitive dust would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.



Sensitive receptors to consider in the area include children at local schools, retirement communities, and hospitals that would be most dramatically affected by poor air quality. One school within the U.S., Willow Elementary School, is within a mile of the Project site (approximately 0.4 miles north of the Study Area). In Tijuana, Colegio Playas Elementary School is located approximately 0.15 miles south of the Western Segment. All other potential sensitive receptors are over a mile away from the proposed area of disturbance. As the construction phase could result in emissions potentially harmful to sensitive receptors, the Project may result in a minimal impact. However, due to the temporary nature of the construction and the BMPs implemented, as listed in Section 1.5.1, it is not anticipated that any sensitive receptors would be negatively impacted by Project activities.

The San Diego air Basin, as mentioned above, includes all of San Diego County. This area comprises approximately 4,526 square miles with a population of approximately 3.3 million. Of the 3.3 million, many are potential emitters, and a marginal few could potentially be exposed to construction emissions resulting from the Project. The Study Area is on either side of the two busiest POEs in the nation, which allows thousands of vehicles to cross the border every day. Each of these trips emits pollutants and ultimately affects air quality in the San Diego Air Basin. In the month of October 2017, there were 1,211,133 personal vehicles, and 2,809 buses that passed through the San Ysidro POE, as well as 88,378 trucks, 40 trains, 1,186,816 personal vehicles, and 2,690 buses that passed through the Otay Mesa POE<sup>5</sup>. The Project is anticipated to require approximately 7,000 truck trips over the 12-month construction period. In comparison to the level of activity and associated emissions in the immediate vicinity, and considering the temporary nature of the construction phase and the incorporation of BMPs, the Planned Action is not anticipated to generate emissions above the *de minimus* thresholds or adversely affect San Diego County's NAAQS designations. Activities associated with construction of the Project would not have major effects on regional or local air quality during the construction phase.

Additionally, appropriate BMPs would be incorporated during construction to minimize impacts to air quality, such as fugitive particulate matter emissions. These BMPs were previously listed in Section 1.5.1 of this ESP. Incorporation of these measures during construction would ensure that minimal impacts related to air quality result from Project implementation in the San Diego Air Basin.

The operational phase would require routine maintenance and repair activities over the lifetime of the Project; however, under the General Conformity rule a number of different Federal activities are exempt. The exemption under 40 CFR 93.153(c)(iv) of the General Conformity rule states, "routine maintenance and repair activities, including repair and maintenance of roads, trails, and facilities" are exempt from General Conformity. All proposed activities associated with the Planned Action would include routine maintenance and repair activities and are considered to be exempt under the General Conformity rule. No permanent air quality impacts are anticipated to result from Project implementation.

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<sup>5</sup> U.S. Department of Transportation. 2017. *Border Crossing Entry Data*. Available at: <https://data.transportation.gov/Research-and-Statistics/Border-Crossing-Entry-Data/keg4-3bc2/data>.



**SECTION 4.0**

**NOISE**

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## SECTION 4.0 NOISE

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### 4.1 AFFECTED ENVIRONMENT

Noise is defined as unwanted sound, which can be based on objective effects (i.e., hearing loss, damage to structures, etc.) or subjective judgments (e.g., community annoyance). Sound is usually represented on a logarithmic scale quantified in decibel (dB) units. Sound on the dB scale is referred to as a sound level. The threshold of human hearing is near 0 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally acknowledged that people perceive intrusive noise at night as being approximately 10 dBA (A-weighted decibel is a measure of noise at a given, maximum level or constant state level) louder than the same level of intrusive noise during the day. This perception is due to the fact that background environmental noise levels at night, in most areas, are approximately 10dBA lower than those during the day.

Potential sensitive noise receptors within the vicinity of the Study Area include residential areas and open space areas. Acceptable noise levels have been established by the U.S. Department of Housing and Urban Development (HUD) for construction activities in residential areas (HUD 1984):

**Acceptable** (not exceeding 65 dB) - This noise exposure may be of some concern, but common building construction will make the indoor environment acceptable and the outdoor environment reasonably pleasant for recreation and play.

**Normally Unacceptable** (above 65 but not greater than 75 dB) – The noise exposure is significantly more severe; barriers may be necessary between the site and prominent noise sources to make the outdoor environment acceptable; special building constructions may be necessary to ensure that people indoors are sufficiently protected from outdoor noise.

**Unacceptable** (greater than 75 dB) – The noise exposure at the site is so severe that the construction costs to make the indoor noise environment acceptable may be prohibitive and the outdoor environment will still be unacceptable.

For open space areas, the Federal Highway Administration (FHWA) noise regulations define a *de minimis* threshold. This regulation defines open space lands as “land on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.” The open space areas, as defined, have a *de minimis* threshold of 57 dBA (23 CFR 722, Table 1).

The Study Area is completely secured by DHS, with a small portion over the Tijuana River managed by the IBWC. The Study Area is completely within Federal jurisdiction, though adjacent properties north of the Study Area are within San Diego City limits. The City of San Diego is interested in minimizing the effects of noise on neighbors. The City code, while not applicable to Federal jurisdictions, does limit noisy

construction activities that may cause average sound levels greater than 75 decibels (averaged between 7 a.m. and 7 p.m.) at or beyond residential property lines.<sup>1</sup>

In addition, loud noise over time is also known to adversely affect some wildlife. Three sensitive bird species listed as rare, threatened, or endangered have the potential to be in proximity of the Study Area. Of those three species, California gnatcatcher (CAGN) is the most likely to be within the Study Area, least Bell's vireo (LBV) may possibly be in portions of the Study Area, and Ridgeway's Rail (RWR) is not expected to have any presence in the Study Area. Generally accepted guidance to protect avian species is to avoid noises that exceed 60 dB sustained for an hour (dBH). This is an average sound level over an hour of 60 dB. Louder noises could occur, but should not be sustained for the duration of the hour.

As a general rule of thumb, noise generated by a stationary noise source, or "point source," will decrease by approximately 4.5 dB to 6 dB for each doubling of the distance, depending on the density of ground surface. For example, if a noise source produces a noise level of 85 dBA at a reference distance of 50 feet, then the noise level will be approximately 80.5 dBA at a distance of 100 feet from the noise source, 76.0 dBA at a distance of 200 feet, and so on.

#### *Western Segment*

On the northern side of this segment, land uses include parks and open spaces such as the Tijuana River National Estuarine Research Reserve, Border Field State Park, Tijuana River Valley Regional Park, Tijuana River County Open Space Preserve, and the International Friendship Park. The eastern end of this segment includes the Tijuana River and the South Bay International Wastewater Treatment Plant. Ambient noise in the northern area of this segment is generally low due to the nature of the multiple parks and open space present. To the south, the Mexican 1D freeway, which generates considerable ambient noise, parallels over half the primary fence alignment. A few residences are directly adjacent to the fence in the west, near the beach, but freeways typically separate Mexican residential areas from the border fence in this segment.

#### *Northern Levee Segment*

At the far eastern end of the Northern Levee are the commercial areas and parking lots of the Las Americas Premium Outlets and the San Ysidro POE located on Interstate 5. Further west is Camino De La Plaza, an arterial road that separates residential areas from the Tijuana River Floodway. At the western end of the north levee is Tijuana River Valley Regional Park, which is just beyond Dairy Mart Bridge Road. South of the levee are the open spaces of the Tijuana River Floodway. A large contributor of ambient noise in this segment is traffic along the Camino De La Plaza roadway and the consumers and workers at the Las Americas Premium Outlets. The residents residing within the apartments along this segment also contribute to the current ambient noise environment.

#### *Central Segment*

For nearly two miles east of the San Ysidro POE, the open spaces of Pacific Gateway Park are directly adjacent to the northern side of the Central Segment. Continuing east, office parks and commercial distribution centers and industrial uses become intermixed with vacant lots and remnants of open space.

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<sup>1</sup> City of San Diego. *San Diego Municipal Code. Article 9.5 Noise Abatement and Control §59.5.0404.*

South of this segment, just east of the San Ysidro POE, residential areas are directly adjacent to the primary fence for approximately 1.7 miles. Next, lands surrounding the Tijuana International Airport continue for about two miles, and further east are generally commercial uses before the Otay Mesa POE. The majority of the ambient noise stems from the activity associated with the operation of the POE, which includes customs, commuters, and public transport trips, along with associated commercial uses. The Tijuana Airport also contributes to the current noise environment.

#### *Eastern Segment*

On the northern side of this segment, just east of the Otay Mesa POE are commercial land uses for approximately a half mile before open space lands begin. The majority of the northern side consists of open space lands of the Otay County Open Space Preserve. To the south and north of this segment are the truck cues, with truck lines often miles long, waiting to cross the border. Across the four-lane boulevard to the south are mostly industrial and commercial uses. Farthest to the east are Mexican residential areas at the base of Otay Mountain. The major noise emitters include the trucks and commercial land uses, which contribute to the dispersed ambient noise environment.

## **4.2 ENVIRONMENTAL CONSEQUENCES**

Noise may be created by the transport of construction materials, operation of construction equipment, and numerous construction activities. Noise levels to receptors vary widely depending on several factors, such as climatic and soil conditions, topography, the condition of the equipment, and current ambient noise levels. Areas that are more developed and therefore more populated have a greater ambient noise level than parks and open space areas, making it is much easier for an adverse noise impact to result in an open space area. Near the Study Area, sensitive noise receptors could be affected including people in residential, parks, and open space land uses. These uses each have *de minimis* thresholds: the residential threshold is 65 dBA and the open space threshold is 57 dBA (23 CFR 722, Table 1). Assuming the worst case scenario of 85 dBA, the noise emissions would have to travel approximately 1,000 feet before they attenuate to acceptable levels of 57 dBA in open spaces and approximately 400 feet before they attenuate to acceptable levels of 65 dBA in residential areas.

**Table 4.1 A-Weighted (dBA) Sound Levels of Construction Equipment and Calculated Attenuation at Various Distances<sup>1</sup>**

Noise Source	50 Feet	100 Feet	200 Feet	500 Feet	1,000 Feet
Auger Drill Rig	85	78.5	74.0	63.0	57.0
Backhoe	85	78.5	74.0	63.0	57.0
Compactor	80	74.0	70.0	60.0	53.5
Concrete Mixer Truck	85	78.5	74.0	63.0	57.0
Crane	85	78.5	74.0	63.0	57.0
Dozer	85	78.5	74.0	63.0	57.0
Dump Truck	84	77.5	73.0	62.5	56.0
Excavator	85	78.5	74.0	63.0	57.0
Flat Bed Truck	84	77.5	73.0	62.5	56.0
Pickup Truck	55	51.0	48.0	41.0	37.0

Source: FHWA 2017

1. The dBA at 50 feet is a measured noise emission (FHWA 2017). The 100 to 1,000 foot results are estimates.

Geographic Information Systems were used to determine the areas encompassed within the 1,000-foot 57 dBA noise contour (Figure 4.1) and the 400-foot 65 dBA noise contour. Installation of the fence and construction of the all-weather road are anticipated to be completed in segments; therefore, construction noise is temporary and would only occur near work being performed.

As discussed in the setting above, all four segments have varying densities of residential and open space uses along the fence corridor. Figure 4.1 shows the respective noise contours, overlaid on open space and residential land uses, to demonstrate the potential for noise emission impacts as a result of Project implementation. The figure, however, does not describe the duration of noise producing activities nor the presence of ambient noise in the environment. The greater ambient noise is attributed to cars, trucks and traffic, airplanes, children, music, and other sound sources in the vicinity. Open space land uses, however, are exposed to less ambient noise in comparison, and thus any increase in the noise environment within an open space area would result in a greater noise impact when compared to the same increase in noise in a residential area.

### *Open Space Lands*

The Study Area is surrounded by open space lands along all four segments. Some of these areas are designated parks and open space preserves, whereas other areas of open space are characterized as vacant lots. In designated parks and open space preserves, serenity and quiet are of significance and are subject to the 57 dBA noise threshold defined by the FHWA. Elevated noise levels have the potential to affect recreational activities and impact wildlife. Assuming the worst case scenario of 85 dBA (Table 4-1), it is estimated that noise levels of 85 dBA from a point source (i.e., crane) near the border would have to travel



approximately 1,000 feet before noise would attenuate to an acceptable level of 57 dBA<sup>2</sup>. Based on this attenuation rate construction noise from the Study Area has the potential to impact approximately 969 acres of open space lands (Figure 4.1) north of the Study Area. (Wildlife have a slightly higher threshold for sustained noise (average of 60 DB sustained over an hour versus 57 DB for a person in a parkland setting) so the distance required for attenuation to 60 DB would be slightly less than the 1,000 foot distance quantified above.) Noise generated by Project construction would be temporary, intermittent, and transient. It is assumed that the Project would be installed in sections and only result in certain areas of open space being affected at any given time. Therefore, there is potential for the Project to result in a temporary adverse impact on the open space parks and preserves in the area, but it is not anticipated that the impacts would occur continuously nor would they occur all at once. Once the Project is completed, noise levels are anticipated to be similar to existing conditions. Certain noise BMPs, as listed in Section 1.5.2 of this ESP, would be implemented to minimize construction noise impacts.

### *Residential Receptors*

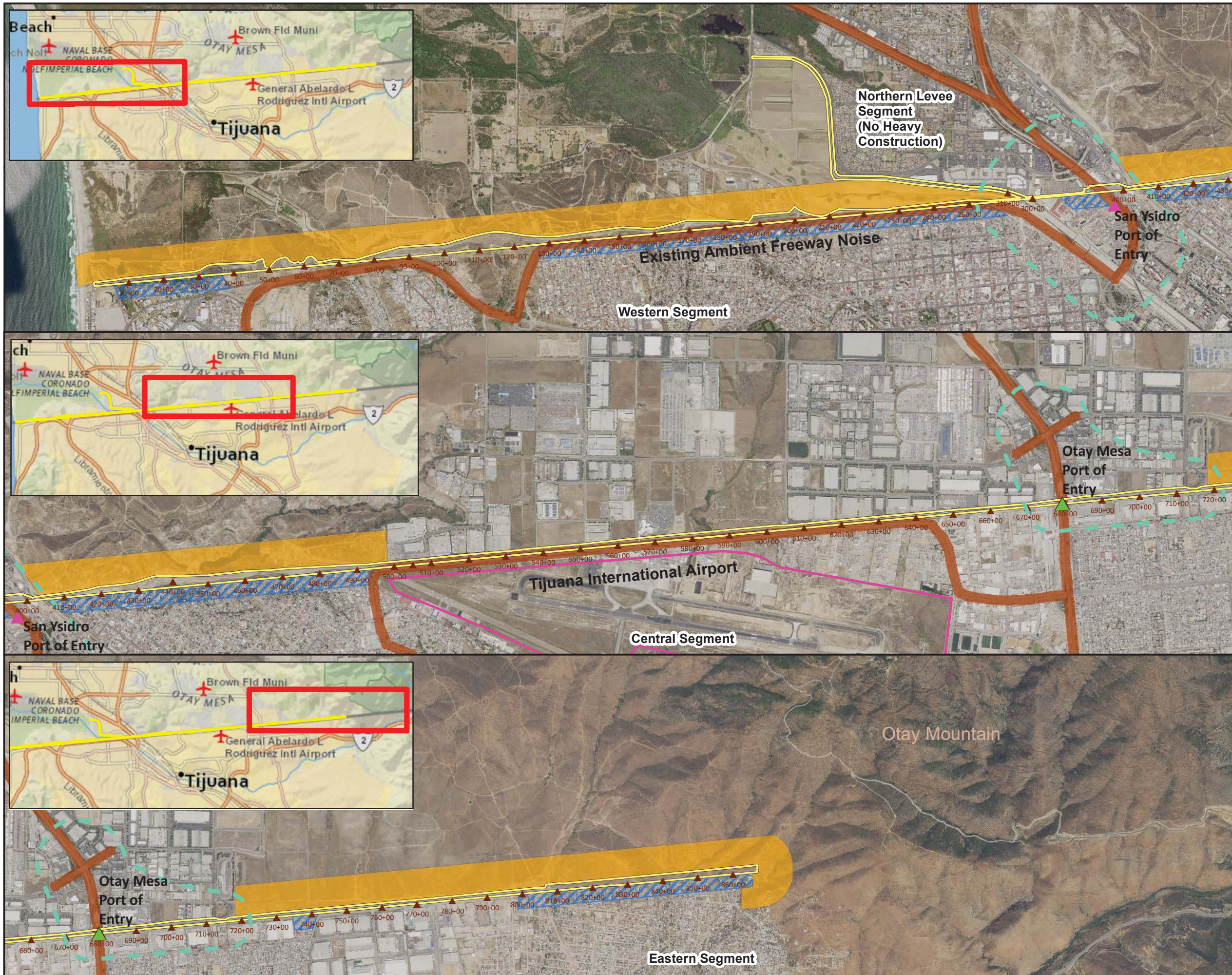
Residential receptors are present along much of the southern side of the Study Area and north of the Northern Levee Segment. The Northern Levee Segment, however will not experience heavy construction, except immediately adjacent to the San Ysidro POE, which is not near any of the residential areas. In many areas, roads and sometimes freeways run between Project construction and the residential receptors, which adds to the current ambient noise level. To achieve attenuation of 85 dBA to a normally acceptable level of 65 dBA, suitable for residential receptors, noise would have to travel approximately 400 feet from the noise source to the receptor, often across these intervening roads. Construction of the new bollard-style wall would not affect any U.S. residential receptors, though on the southern side approximately 302 acres of Mexican residential receptors are within the noise contour that could be exposed to temporary unacceptable levels of noise; however, ambient noise levels in those areas from intervening highways and surrounding land uses are typically high. Also construction is anticipated to be temporary, intermittent, and transient. It is not anticipated to occur along the entire Project site for the complete duration of the construction phase, instead it is anticipated to be constructed in sections, which would minimize the number of residential receptors exposed to unacceptable noise levels at one time. Additionally, Noise BMPs, as listed in Section 1.5.2 of this ESP, would be implemented to minimize impacts to the residential noise receptors during the construction phase. During the operational phase, noise levels are anticipated to be similar to existing conditions. No permanent adverse noise impacts on residential properties are anticipated to occur.

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<sup>2</sup> For wildlife in open space areas, noise may not exceed an average of 60 DB over any one hour period.



Figure 4.1  
Noise Impact Contours



- Ports of Entry
  - Tijuana International Airport
  - Otay Mesa Port of Entry
  - San Ysidro Port of Entry
  - Engineering Plans Station Numbers
  - Project Site
- Areas Affected by Temporary Construction Noise:**
- Open Space Areas  
Temporarily Affected (969.70 ac.)
  - US Residential Areas  
Temporarily Affected (0.00 ac.)
  - Mexican Residential Areas  
Temporarily Affected (302.00 ac.)
- Existing Sources of Ambient Noise:**
- Freeways (65 DBA at 50 feet)



Map Prepared Date: 4/23/2018  
Map Prepared By: pkobylarz  
Base Source: Esri Streaming - NAIP 2016  
Data Source(s): WRA



**SECTION 5.0**

**LAND USE, RECREATION, AND AESTHETICS**

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## 5.0 LAND USE, RECREATION, AND AESTHETICS

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### 5.1 AFFECTED ENVIRONMENT

#### 5.1.1 Land Use and Recreation

The Project Area is comprised generally of federal land, though some access areas may require temporary use of state, county, and city roads. The majority of the Project Area is under the administrative jurisdiction of CBP. CBP works with IBWC and other federal agencies to address parcels within the Study Area pursuant to agreements with those agencies. In considering proposed projects, the critical question is whether the proposed land use would be compatible with existing adjacent land uses and with other known or approved land uses proposed for the area.

The Project Area is currently dedicated to Border Patrol activities in support of homeland security, and the planned Project would subscribe to that land use. The physical basis of these activities is the Roosevelt Reservation. Portions of the Study Area are owned by various other Federal and state agencies, such as BLM and California State Parks, but the CBP currently manages all activities within the Study Area.

The Study Area is the international border area between the United States and Mexico and also the boundary between the cities of San Diego, California, and Tijuana Municipality, Mexico, an urban city of approximately 1,300,000 inhabitants. Mexican land uses along the Project Area are comprised mainly of residential uses, as well as some large highways that parallel certain segments of the Project. A large public stadium (a bull ring) is at the far western end by the beach as part of the International Friendship Park.

In the U.S., the Study Area runs along the boundary of the City of San Diego (the City). The City is one of several jurisdictions participating in the regional San Diego County Multiple Species Conservation Program (MSCP) in cooperation with USFWS, CDFW, property owners, developers, and environmental groups. The plan delineates core biological resource areas, corridors, and targeted conservation areas. CBP recognizes that many portions of the Study Area are environmentally sensitive as described in the MSCP, but this plan excludes CBP activities and CBP is not bound by the proposals it contains<sup>1</sup>. To the extent mitigation is warranted, CBP would use the mitigation ratios from the MSCP mitigation tables as guidance if unavoidable impacts to endangered species habitat result from the Project. As noted in previous sections, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

The San Diego Association of Governments (SANDAG)<sup>2</sup> maintains a database of existing and planned land uses for the region. A Generalized Land Use Map, using the classifications described below, was compiled by SANDAG from each local entity's General Plan or Community Plan Land Use and/or Circulation Element maps:

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<sup>1</sup> California Department of Fish and Wildlife. 2017. *NCCP Plan Summary-San Diego Multiple Species Conservation Program (MSCP)*. Available at: <https://www.wildlife.ca.gov/Conservation/Planning/NCCP/Plans/San-Diego-MSCP>

<sup>2</sup> SANDAG is the association of 18 local city and county government entities that serves as the forum for regional decision making within the San Diego metropolitan area. SANDAG develops, compiles, and maintains an extensive land use database used in developing area-wide plans and special projects.

- **Residential** - Spaced Rural Residential (low density single family), Single Family Detached, Single Family Attached, Mobile Homes, Multiple Family.
- **Commercial and office** - Shopping Centers (e.g., regional and community centers), Commercial and Office (e.g., strip and general retail, hotels, motels, wholesale, professional, governmental, business services).
- **Industrial** - Heavy Industry (shipbuilding, airframe and aircraft manufacturing), Light Industry (e.g., other manufacturing and food processing, industrial parks, research and development parks), and Extractive Industry (e.g., mining, sand and gravel extraction, salt evaporation).
- **Public Facilities and Utilities** - Transportation, communication, and utilities (e.g., freeways, airports, terminals, shipping, communication facilities, power plants, waste disposal, water treatment facilities), Education, Institutions (e.g., hospitals and other health care facilities, churches, cemeteries), Military.
- **Parks and Recreation** - Recreation, Parks (e.g., state and regional parks and preserves, National Monuments, wildlife preserves, open space preserves).
- **Agriculture** - Intensive Agriculture (e.g., orchards, vineyards, nurseries, greenhouses, poultry, dairies, livestock), Extensive Agriculture (e.g., pasture, fallow).
- **Vacant and Undeveloped** - Land which is currently vacant, some will remain undeveloped, and some is potentially developable.

Existing land uses adjacent to the Project Area vary considerably along the 14-mile corridor. The Study Area is divided into four segments: the Western Segment, the North Levee Segment, the Central Segment, and the Eastern Segment, which traverse various land use designations. The following describe the land uses adjacent to these segments:

#### *Western Segment*

Land uses adjacent to the Western Segment generally consist of parks and open space, extractive industry, agriculture, undeveloped parcels, and utilities. Parks and open space are prevalent and next to this segment, starting from the Pacific Ocean and moving east are the Tijuana River National Estuarine Reserve, Border Fields State Park (located completely within the Reserve), the Tijuana River Regional Valley Park (operated by San Diego County), and the Tijuana River Floodway (TRF). The TRF is owned by the U. S. Section of the IBWC and managed by CBP. Between the TRF and the Project Area is the International Waste Water Treatment Plant, the only heavy industrial facility near the Project Area, which is owned and operated by the IBWC. Currently there are special gates in the primary fence that allow permitted trucks to enter into and out of the treatment plant into Mexico.

The rugged terrain and natural features also affect land use in the Western Segment. A road through coastal hills generally parallels the border between the primary and secondary fences through most of this segment. The road provides CBP patrol access over Bunker Hill and across Smugglers Gulch to the Tijuana River. The area is affected by erosion and rapid siltation that flows downstream from Mexico across the project



area and into the Tijuana River Estuary. To reduce the sediment compromising the health of the estuary, some sediment is captured and removed by State Parks from settling basins just north of the Project Area. Sediment removal is ongoing and will not be affected by Project implementation.

#### *Northern Levee Segment*

The Northern Levee Segment is part of the Tijuana River Floodway (TRF). The TRF is owned by the IBWC and CBP manages and maintains the floodway under Dairy Mart Bridge Road pursuant to an agreement between the two agencies. The floodway creates a gap to allow the Tijuana River to flow across the border between the primary and secondary border fences, which necessitates increased CBP monitoring and surveillance activity along this section.

Within the TRF are lands designated as intensive agriculture and to the west are open space park lands, including the Tijuana River Valley Regional Park, and undeveloped parcels. The intensive agriculture parcel was previously utilized as a sod farm, but it is no longer operational. An IBWC field office is also at the western end of the segment, near Dairy Mart Bridge Road.

Camino De La Plaza is a major throughway that generally parallels the northern side of the levee and separates it from the housing further north. A City of San Diego right-of-way is on both sides of the Camino De La Plaza roadway. Across Camino de la Plaza to the north are the San Ysidro South Neighborhoods. The San Ysidro South Neighborhood is comprised of low-density single-family homes. Further east are the Las Americas Premium Outlets, a commercial district that backs up to the proposed 1,500 feet of primary fence replacement on the northern levee, just west of the San Ysidro POE.

#### *Central Segment*

The Central Segment of the Project Area starts at the San Ysidro POE and continues eastward to the Otay Mesa POE. The U.S. Customs and traffic management facilities associated with the POEs are at either end of this segment. Land uses to the north of this segment include office parks, warehouses, distribution centers, utilities and transportation, institutions, and open space lands. Pacific Gateway Park is a large open space of approximately 1,250 acres that is adjacent to the secondary fence. The 60-foot wide Roosevelt Reservation makes up the southern portion of the larger open space between the primary and secondary fence, though no visible demarcation is evident.

There are a variety of industrial, commercial, and utility uses near this segment due to the location adjacent to the border. Some of these include Otay Pacific Business Park, Britannia Industrial Park, and the Otay Mesa Chamber of Commerce. The open space area north of this segment is an extension of the Pacific Gateway Park mentioned above. Areas south of this segment consist of a mix of residential, commercial, and industrial uses in Tijuana, Mexico. The Abelardo L. Rodriguez Airport is also on the Mexican side of the border, south of the Otay Mesa POE, and opposite the Otay Pacific Business Park.

#### *Eastern Segment*

Land uses adjacent to this segment include mainly open space parks and undeveloped areas. This section of the Study Area is generally undeveloped on the north side of the border, however the border wall

prototypes are also present. The western piece of this segment includes portions of the truck crossing and inspection stations for the Otay POE border crossing.

Land uses to the north of this segment are generally designated as undeveloped or open space. Some of these undeveloped areas are part of the Otay County Open Space Preserve, while others are BLM lands. South of this segment, on the Mexican side of the border, are industrial, residential, and undeveloped uses.

### 5.1.2 Aesthetics

Aesthetic resources, sometimes referred to as visual resources, consist of various combinations of all available natural and man-made features in the landscape. This combination of features creates the visual character of a given environment. Depending on the combination of features in a setting, visual character can range from aesthetically pleasing to ugly.

The natural elements that combine to form the aesthetic setting of the Project Area include the arid environment, the coastal mountains that overlook the Pacific Ocean and the Tijuana Estuary, and the open spaces of the Tijuana River Valley and the Otay Mesa. The built environments within the cities of San Diego and Tijuana also contribute urban elements into the visual character, such as major highways and thousands of trucks and cars at very busy POEs, the varying character of different residential and commercial areas near the border, the Tijuana airport, the bull ring, and the beach.

The numbered and rusted metal plates of the primary fence are a consistent feature that delineates the southern edge of the Project corridor. The secondary fence is newer and larger, though less consistent in placement and often made of different materials. In the Western Segment the secondary fence is metal and in some sections there is razor-wire along the base and top, whereas in the Tijuana River floodway, the secondary fence is made of concrete bollards. The concrete road in the western portion of the site and other paved and unpaved access roads internal to the border control area are also common features within the Project Area. The linear fence is visible for long distances. Dedicated open space and border control roads are notable features along the fence, as is the abrupt fence edge paralleling highways and edging neighborhoods in the City of Tijuana. See Figure 5.1 (Visual Character of the Area) for a representation of these details.

#### *Western Segment*

The topography in the Western Segment is coastal hills with steep slopes and narrow ridges in the western half, and level expanses in the Tijuana River valley to the east. The border control area climbs up Bunker Hill, which provides overlooks of the Pacific Ocean, the City of Tijuana, and the Tijuana River estuary. In this coastal hill and mesa area, only the primary fence delineates a straight line over the hills and across the valleys. The larger secondary fence is visible in the far west across the coastal plain and further inland across the Tijuana River Valley. The access road is nearby with switchbacks cut into the hillside. Slopes are revegetated and drainage structures are evident in valleys. Views of the site currently include the rusted primary fence, an all-weather road, several access roads, and the mountainous ridges and valleys. There is no tall vegetation to screen views. The secondary fence, though not a consistent feature, is nearly 20 feet tall, made of steel with double rolls of razor-wire along the base. On the Mexican side of the border, residential and other uses can currently view most of the Project Area due to the variable terrain.

### *Northern Levee Segment*

Views in this segment include the Tijuana River Valley Basin and the adjacent Mexican lands. The Tijuana River is plagued with debris and trash that flushes down with the flood waters. The Northern Levee Segment is a completely man-made feature consisting of a narrow strip of land that is developed with an all-weather road. Travelers along the Camino De La Plaza road, as well as residents in the adjacent San Ysidro South neighborhood and frequenters of the shopping center, can view the existing primary fence. The Tijuana Valley River Basin can also be viewed from areas east of where the primary fence is located, although the fence does screen the basin from view. Trees exist on the northern side of the segment, but are so few that they provide limited screening from adjacent land uses.

### *Central Segment*

The Central Segment is generally flat, consists of dirt access roads, and is bordered by both the primary and secondary fences. Although this segment is densely populated with industrial and commercial uses, views of the Project site are limited due to the secondary fence. The two POEs, San Ysidro and Otay Mesa, are areas that are heavily trafficked to allow people, as well as goods and services, to safely cross the border. The vehicles transporting such materials travel through this segment, which results in views of access roads, the primary and secondary fences, as well as the adjacent Mexican land uses.

### *Eastern Segment*

The Eastern Segment follows the natural slope of the land and contains wide access roads and a corridor for the construction of the border wall prototypes. The primary fence exists along this entire segment as well, but the secondary fence only spans approximately 2.5 miles of the 3.75-mile segment. The area surrounding this segment is mostly characterized by open space and adjacent Mexican land uses. Views of the Project Area would be of the natural landscape and would remain unobstructed from the northern viewpoints.

## **5.2 ENVIRONMENTAL CONSEQUENCES**

### **5.2.1 Land Use and Recreation**

Land use areas will not be permanently affected by replacement of the primary pedestrian fence nor any other improvements proposed in the border control corridor. Economic factors driving development will continue in the same ways and in the same areas they do now, open spaces and parklands will remain, and opportunities for recreation will also continue. Border crossings will continue to be busy and the airport in Tijuana will continue to draw passengers from the San Diego area, as long as it is permitted.

The narrow border control corridor will however be temporarily impacted during construction of the proposed Project. The construction phase will require two primary staging areas; one of approximately 28 acres adjacent to the water treatment plant in the Western segment, and another 11-acre parcel just east of the Otay Mesa POE in the Eastern Segment. The BMPs listed in Section 1.5 of this document ensure that lands, roads, and access routes utilized for staging, equipment transportation, and involved in temporary disturbance due to the removal and/or installation of Project components will be repaired and/or returned to pre-construction conditions to the extent feasible.

The construction of the bollard-style wall and the 15-foot-wide all-weather road, will occur within a 21 foot wide corridor that allows three feet on either side for construction of road embankments, will permanently impact 33.3 acres of land within the 220 acre Study Area. Of that 33.3 acres of permanently impacted land, 6.4 acres (~19%) will be newly disturbed habitat or wetlands, and the remaining 27 acres will be previously disturbed, currently developed, or covered with non-sensitive, non-native annual grassland. Thus the general land use (as mainly previously disturbed or developed road) will not be impacted.

Open space is common within this area and it is not anticipated that the planned Project will pose a major change to land use or recreational opportunities regionally, especially as the Study Area is already designated as a restricted access area. The Study Area is adjacent to areas addressed in the City of San Diego's MSCP, but CBP is not a signatory to the MSCP. CBP does support the broader goals of the MSCP to the degree it can while still achieving its mission and CBP will minimize impacts to resources within the Study Area to the maximum extent feasible. City and County protected resources will be avoided to the extent feasible and existing infrastructure will be utilized whenever possible. CBP has several agreements with the County to use access roads and disturbed areas on County-owned and managed lands, such as in the Tijuana River Valley Regional Park (TRVRP), which is adjacent to the Study Area. CBP may utilize existing access roads and will avoid use of parkland roads to the maximum extent feasible to minimize potential impact to park users during construction, operation, and maintenance of the Project.

Construction of the planned Project will increase border security and may result in a change to illegal traffic patterns. Changes to cross-border violator traffic patterns are unpredictable and beyond the scope of this ESP, however beneficial indirect impacts are expected as improved cross-border security will substantially reduce or eliminate cross-border violators and benefit recreational opportunities.

### **5.2.2 Aesthetics**

The removal and replacement of the primary pedestrian fence will affect the appearance of the Project Area. The bollard style replacement fence will allow for views through the fence, whereas the existing fence is solid and currently prevents ground level views through the separator. The replacement fence will also be 18 feet to 22 feet tall, which is taller than the current 12-foot height of the primary fence. This will result in a fence that is visually more substantial than the existing fence, but less of a visual separator because of the see-through character of the vertical bollards. The current primary and secondary fences are already linear features which are identifying characteristics of the border control area. The increase in fence height above 20 feet may appear out of scale relative to some modest single-story residences nearby. Otherwise the overall linear character of the fences in border control areas will remain, and could also provide beneficial effects to the aesthetics of the area, depending on the design selected, by providing a clean bollard style design of a scale suitable to the international border, particularly when adjacent to civic facilities. The transparent qualities of the bollard style design allow people to see through the fence, which is beneficial for CBP officers in an operational sense and for anyone else wishing to obtain views of the broader landscape across the border.

During the construction phase of the planned Project, the presence of construction equipment, use of staging areas, and use of lighting may have moderate but temporary impacts on the Project Area's appearance. Removal and installation of Project components will cause visible changes to the Project Area, but those changes will be consistent with the pre-construction conditions and the visible character of the site. There

are no publically available scenic vistas that would be adversely affected. The staging areas, as well as areas associated with the Project, would be returned to pre-existing conditions once the Project has been completed, further minimizing temporary impacts.

The addition of an all-weather road in areas where it doesn't currently exist (mostly the Central and Eastern Segments), will add to the developed appearance of the Study Area. The Project is currently accessible from existing unimproved roads, and a new all-weather road will add another linear feature to the landscape. When completed, at least four parallel features will extend east part way up Otay Mountain into an otherwise undeveloped desert landscape, including the new bollard--style wall, the new all-weather road, the existing dirt or gravel access roads (sometimes more than one) and the secondary wall (where it exists). In addition, all stream crossings, (generally perpendicular to the fence line) will be reinforced with concrete. The eastern segment is at the urban fringe and the Project will extend the developed character further into the desert landscape. The combination of the new bollard-style wall with the new all-weather road, in the midst of existing border infrastructure facilities heading up Otay Mountain becomes a very visible feature on the landscape. Where most of the Project is at ground level, this elevated portion serves to remind all within view that this is a defined border.



**Figure 5.1 Visual Character of the Study Area**



**Photograph 5.1 Western Segment looking west to Pacific Ocean.**



**Photograph 5.2 Hilly terrain is common in Western Segment.**



**Photograph 5.3 Secondary Fence and existing all-weather road in the Western Segment. Primary Fence is delineated to the right.**



**Photograph 5.4 Northern Levee Segment:** The fence on the left parallels the Tijuana River Floodway and will be replaced with the new Primary Fence for a distance of approximately 1,200 feet.



**Photograph 5.5 Central Section:** To the left, truck traffic waiting to cross at the Otay Mesa POE are just beyond the Primary Fence to be replaced. Border Patrol observes incoming trucks briefly within the border control area on the right. Wetlands to be avoided are in the center.



**Photograph 5.6 Eastern Section:** Looking east towards Otay Mountain. To the left of the Primary Fence to be replaced is the U.S. The new Primary Fence extends to the end of the straight road in the center.



**SECTION 6.0**

**GEOLOGICAL RESOURCES AND SOILS**

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## 6.0 GEOLOGICAL RESOURCES AND SOILS

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### 6.1 AFFECTED ENVIRONMENT

The Project lies within the Peninsular Ranges Geomorphic Province of southern California, which is a northwest-trending geomorphic province that occupies the southwestern corner of California and extends across the international border into Baja California. The province consists of the San Jacinto and Santa Rosa Mountains, which were formed from the Southern California Batholith, an igneous rock formation. The Southern California Batholith is the core of the rock mass of the San Jacinto Mountains and is classified as Mesozoic granite. However, as the batholith rose, it pushed through overlying sedimentary layers. The second most abundant rock formation of the San Jacinto Mountains is metamorphic, due to the intense heat and pressure exerted on the layers as the batholith rose, causing changes to the sedimentary layers that became visible from earth-building activity<sup>1,2</sup>.

The soils of the province are primarily made up of Alfisols and Mollisols, both of which exhibit high fertility and are found under savanna and grassland vegetation (Bailey 1995). Much of the region has been converted to a combination of urban and agricultural land use. Soil mapping resources indicate that there are eleven major soil types mapped within the Study Area (CSRL 2017, USDA 1973) (Figure 6.1). The soils from Imperial Beach to San Ysidro consist primarily of loams, ranging from finer-particulate composition of sandy loams to large particulate composition of cobbly loams, with a range of infiltration rates from low to high. The soils from just east of San Ysidro POE to the Otay Mesa POE consist of nine described soil series, several of which occurred in multiple distinct locations. These soils are moderately-drained to well-drained, with the exception of the Huerhuero series, which has very high runoff.

As previously discussed, the Project is divided into four segments. Each of the segments have potentially active, inactive, presumed inactive, or actively unknown fault zones. No active Alquist–Priolo Earthquake fault zones are within the Study Area. In addition to potential instability due to fault activity, the Study Area also has a high potential for landslides. Furthermore, erosion hazards must also be considered and are evaluated based on the factor of K (values ranging from 0.02 to 0.69) attributed to a certain soil type. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The soils present within each segment and the potential for geologic hazards contained within each are discussed below.

#### *Western Segment*

The Western Segment is composed of the following soil types: Marine, loamy, coarse sand with 2 to 9 percent slopes (MIC); Terrace escarpments (TeF); Chino silt loam, saline with 0 to 2 percent slopes (CkA); Riverwash (Rm); Carlsbad gravelly, loamy sand with 2 to 5 percent slopes (CbB); Huerhuero loam with 5 to 9 percent slopes (HrC2); Olivenhain cobbly loam with 9 to 30 percent slopes (OhE); Visalia gravelly sandy loam with 2 to 5 percent slopes (VbB); and Chino fine, sandy loam (ChA). The erosivity values of

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<sup>1</sup> California Geological Survey, Department of Conservation. 2015. Geological Gems of California State Parks, Special Report 230. Available at: [ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR\\_230/Notes\\_LR/CGS\\_SR230\\_PeninsularRanges\\_GeomorphProvince\\_lr.pdf](ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_230/Notes_LR/CGS_SR230_PeninsularRanges_GeomorphProvince_lr.pdf)

<sup>2</sup> Unites States Geologic Survey. 2008. Geologic Map of the San Diego 30'x60' Quadrangle, California. Available at: [https://ca.water.usgs.gov/sandiego/data/gis/geology/kennedy2008/RGM3\\_San\\_Diego\\_2008\\_Pamphlet.pdf](https://ca.water.usgs.gov/sandiego/data/gis/geology/kennedy2008/RGM3_San_Diego_2008_Pamphlet.pdf)

these soil types (measured in K values) range from 0.02 to 0.43. The soils with the greatest presence in this segment are TeF, OhE, and CkA. The TeF soil does not have a K value associated with it, however the other two have a rating of 0.20 and 0.32, respectively. From this it can be assumed that the Western Segment has a moderate risk of erosion. Furthermore, according to the City of San Diego Seismic Safety Study, this segment consists of areas that are subject to possible or conjectured landslides, confirmed or highly suspected landslides, and some low lying areas that have a high potential for liquefaction<sup>3</sup>.

#### *Northern Levee Segment*

The Northern Levee Segment is paved along the area that is planned for fence replacement, entirely within an artificial levy built on rip-rap and fill soil, underlain by the Tujunga sand with 0 to 5 percent slopes (TuB) soil type. This soil type has a K value of 0.02, providing this segment with a low risk of erosion. On the other hand, the area has a high potential for liquefaction because it is along the Tijuana River floodplain where there is shallow groundwater.

#### *Central Segment*

Soils in the Central Segment are highly disturbed and many of the native soils have been removed. Nonetheless the native soil types in the area include: Diablo clay with 30 to 50 percent slopes (DaF); Huerhuero loam with 2 to 9 percent slopes (HrC); OhE, Olivenhain cobbly loam with 30 to 50 percent slopes (OhF); Stockpen gravelly clay loam with 0 to 2 percent slopes (SuA); and Stockpen gravelly clay loam with 2 to 5 percent slopes (SuB). The soil types that make up the majority of the segment are SuA, HrC, and SuB. The K values of these soil types range from 0.24 to 0.43, and therefore this segment also has a moderate risk for erosion. This segment has a low potential for liquefaction due to fluctuating groundwater in minor drainages and in steeper areas, which are rare, there is a high risk of landslides.

#### *Eastern Segment*

The soils in this segment consist of HrC; HrC2; Huerhuero loam with 9 to 15 percent slopes (HrD); Huerhuero loam with 9 to 15 percent slopes eroded (HrD2); Salinas clay with 0 to 2 percent slopes (ScA); TeF; and San Miguel-Exchequer rocky silt loams with 9 to 90 percent slopes (SnG). The majority of this segment consists of the HrC, ScnG, and HrD soil types. The K values for these soils range from 0.43 to 0.55, therefore this segment has a high potential for erosion. This segment has a moderate risk for landslides, but there are few hills steep enough to create such an occurrence. There are no fault zones within this segment.

## **6.2 ENVIRONMENTAL CONSEQUENCES**

The proposed Project would affect surface geology in the Study Area through grading during site preparation, reinstallation of 14 miles of primary pedestrian fence, installation of the all-weather access road, and other construction-related activities. Although the Project would alter some soils in the Study Area, many of the soils have been previously disturbed due to past construction and development projects, and effects would be localized and contained within the narrow linear fence line. Prior to construction,

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<sup>3</sup> City of San Diego. 2008. Seismic Safety Study. Available at: <https://www.sandiego.gov/development-services/industry/hazards>

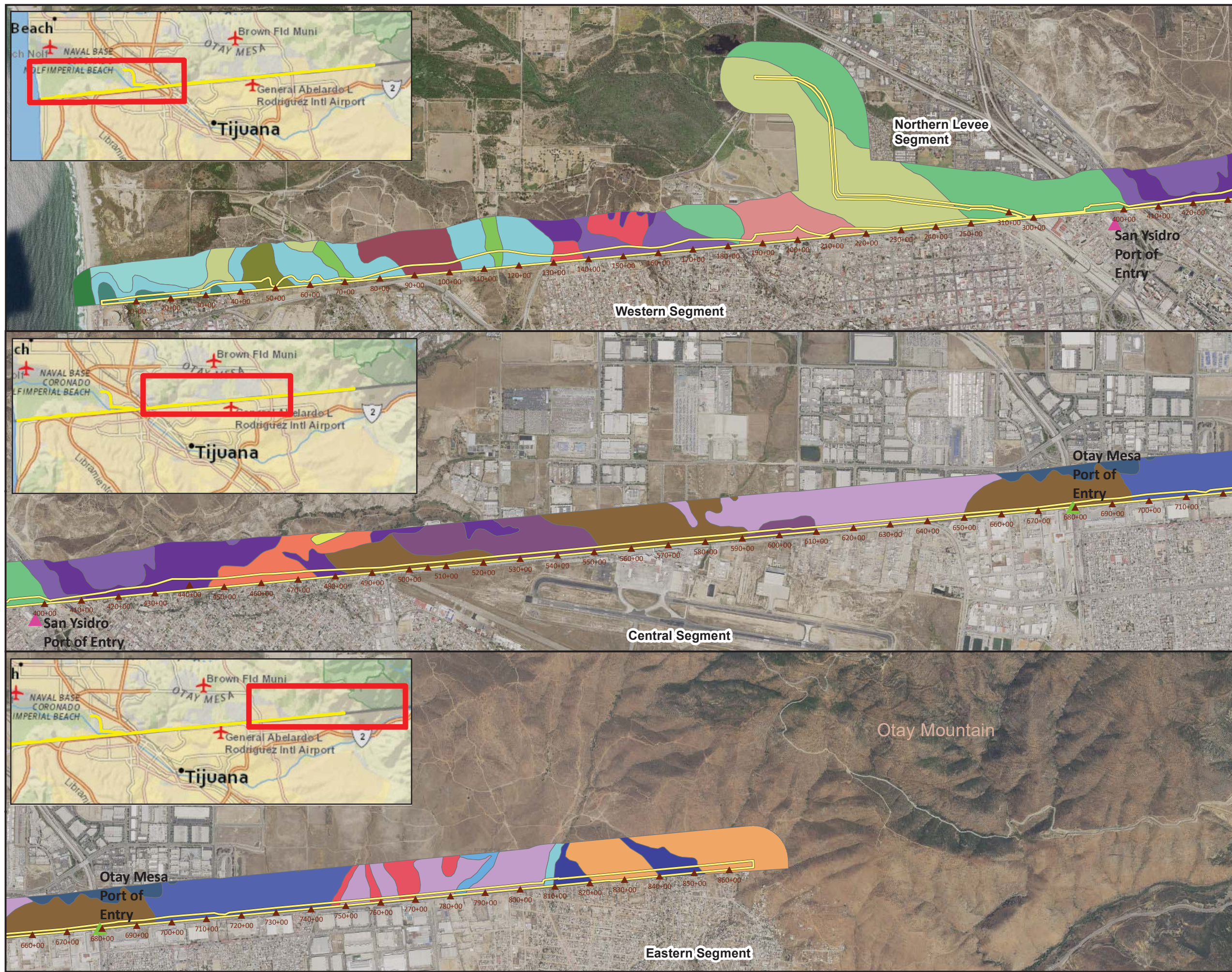
quality topsoil should be identified and conserved by preliminary removal and storage for future reuse in restoration.

The disturbance of soils would be confined to the construction phase. Temporary impacts would include the risk of increased erosion and sedimentation of waterbodies within the immediate vicinity. Soil compaction and installation of the new fence and access roads would permanently alter the unprotected topsoil and subsoils beneath the fence and roads. Additional compaction disturbance would occur along truck routes and in staging areas. However, the staging areas would be returned similar to pre-construction conditions once the Project has been completed. Ripping or loosening of the surface soils and grading for proper drainage after staging activities are complete and prior to revegetation efforts would be needed to ensure long-term recovery of the area and to prevent soil erosion problems.

BMPs to conserve topsoil, minimize erosion, and otherwise lessen effects of the action would also be implemented during the construction and operational phases (refer to Section 1.5.3). Minimization measures would include erosion control techniques, such as straw bales (weed seed free), silt fencing, aggregate materials, wetting compounds, and rehabilitation, where possible, to decrease erosion. A Storm Water Pollution Prevention Plan (SWPPP) will also be prepared prior to construction activities and BMPs described in the SWPPP will be implemented to reduce erosion. With the implementation of the BMPs and other erosion control measures, the Project is not anticipated to result in an adverse effect to the geological resources present within the Study Area.



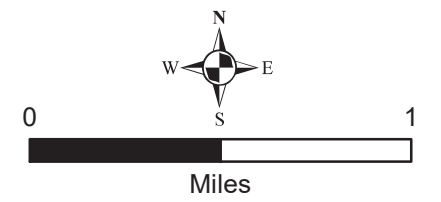
Figure 6.1  
Soils in the Project Area



- Project Site
- Engineering Plans Station Numbers
- Otay Mesa Port of Entry
- San Ysidro Port of Entry

**Soil Types:**

- CbB: Carlsbad gravelly loamy sand, 2 to 5 percent slopes
- Cfb: Chesterton fine sandy loam, 2 to 5 percent slopes
- ChA: Chino fine sandy loam, 0 to 2 percent slopes
- CkA: Chino silt loam, saline, 0 to 2 percent slopes
- Cr: Coastal beaches
- DaC: Diablo clay, 2 to 9 percent slopes
- DaF: Diablo clay, 30 to 50 percent slopes
- HrC2: Huerhuero loam, 5 to 9 percent slopes, eroded
- HrC: Huerhuero loam, 2 to 9 percent slopes
- HrD2: Huerhuero loam, 9 to 15 percent slopes, eroded
- HrD: Huerhuero loam, 9 to 15 percent slopes
- LsF: Linne clay loam, 30 to 50 percent slopes
- MIC: Marina loamy coarse sand, 2 to 9 percent slopes
- OhC: Olivenhain cobbly loam, 2 to 9 percent slopes
- OhE: Olivenhain cobbly loam, 9 to 30 percent slopes
- OhF: Olivenhain cobbly loam, 30 to 50 percent slopes
- Rm: Riverwash
- ScA: Salinas clay, 0 to 2 percent slopes
- SnG: San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes
- SuA: Stockpen gravelly clay loam, 0 to 2 percent slopes
- SuB: Stockpen gravelly clay loam, 2 to 5 percent slopes
- TeF: Terrace escarpments
- Tf: Tidal flats
- TuB: Tujunga sand, 0 to 5 percent slopes
- VbB: Visalia gravelly sandy loam, 2 to 5 percent slopes



Map Prepared Date: 4/23/2018  
Map Prepared By: pkobylarz  
Base Source: Esri Streaming - NAIP 2016  
Data Source(s): WRA





**SECTION 7.0**

**HYDROLOGY AND WATER MANAGEMENT**

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## SECTION 7.0 Hydrology and Water Management

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### 7.1 AFFECTED ENVIRONMENT

The Project Area in this document refers to the area in which permanent or temporary impacts may occur from Project construction activities. These impacts will generally be restricted to the 60-foot wide corridor along the United States/Mexico border known as the Roosevelt Reservation, plus two primary staging areas and a narrow strip of land along the northern levee of the Tijuana River Valley. To thoroughly address the hydrology of the Project, a variable-width Study Area was analyzed, which generally extends from 60 feet to as wide as approximately 350 feet from the border. The analyses in this section apply to the Study Area rather than the more specific Project Area.

#### 7.1.1 Groundwater

The Study Area is located in southern San Diego County and the water supply is monitored by the San Diego Water Authority (SDWA). The San Diego Integrated Regional Water Management Region contains 24 separate groundwater basins, and two of those basins underlie the Study Area, specifically the Tijuana and Otay Valley groundwater basins. The most productive geological unit in the Study Area is the alluvium under the Tijuana River, which is typically less than 150 feet deep and averages about 80 feet thick. Wells in this area yield as much as 2,000 gpm, but the average is about 1,000 gpm<sup>1</sup>.

The Study Area is also immediately adjacent to the South Bay International Wastewater Treatment Plant and the Tijuana River within the Western Segment, which is a source of groundwater recharge in the lower Tijuana River Valley. Groundwater recharge also occurs naturally through precipitation, the Tijuana River, and other water sources in the area.

Groundwater within the region generally occurs in alluvial aquifers, residuum (crystalline bedrock that has weathered in place), aquifers comprised of semi-consolidated or consolidated sediments, and fractured crystalline rock. Other water-bearing formations in the region include the Poway Group, San Diego Formation, San Mateo Formation, La Jolla Group, Santiago Peak Volcanics, and Otay Formation. Only three alluvial aquifer basins within the San Diego region (the Warner, San Luis Rey Valley, and Sweetwater Valley Basins) exceed a storage capacity of 100,000 AF. Ten additional alluvial aquifers typically exceed 50,000 AF. These aquifers provide most of the current groundwater production within the region with yields typically in the range of several thousand acre-feet per year<sup>2</sup>.

#### 7.1.2 Surface Water

The Study Area bisects the Tijuana River watershed, and the Tijuana River itself crosses the Study Area before flowing west approximately 0.2 miles to the Pacific Ocean. Average precipitation ranges from 12 inches on the Valley floor and up to 20 inches in the nearby upland areas. About a third of the headwater tributaries of the Tijuana River originate in the United States before crossing southward through the Eastern

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<sup>1</sup> California Department of Water Resources 2006, California Groundwater Bulletin 118, Accessed 1/2/18 <http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/9-19.pdf>

<sup>2</sup> San Diego County Water Authority. 2013. San Diego Integrated Regional Water Management Plan, Regional Characteristics. Available at: [http://www.sdirwmp.org/pdf/SDIRWM\\_03\\_Region\\_Description\\_Sep2013.pdf](http://www.sdirwmp.org/pdf/SDIRWM_03_Region_Description_Sep2013.pdf).

and Central Segments of the Study Area into Tijuana, Mexico. Tributaries collect in the concrete-lined channel that is now the Tijuana River in Tijuana, before heading north back into the United States near the San Ysidro Port of Entry. At the border, the river flows between two levees as part of the Tijuana River Floodway (TRF), before becoming a naturalized stream again through San Diego County's Tijuana River Regional Park, and then ultimately discharging into the Tijuana River Estuary and the Pacific Ocean just north of the United States/Mexico border.

The Tijuana Watershed is one of the most severely impacted watersheds in the United States, primarily in the lower western portion of the watershed, below Tijuana. It is classified as a Category I (impaired) watershed by the California Water Resources Control Board due to its array of 37 specific water quality impairments<sup>3</sup>.

Eight water bodies within the U.S. portion of the Tijuana River watershed are listed on the 303(d) list. Those listed within the Study Area include the Tijuana River and the Tijuana River Estuary. The Tijuana River is listed due to indicator bacteria, eutrophication, dissolved oxygen (DO), pesticides, solids, synthetic organics, trace elements, trash, phosphorous, sedimentation/siltation, selenium, surfactants, nitrogen, and toxicity. The Tijuana River Estuary is listed due to indicator bacteria, eutrophication, DO, lead, nickel, pesticides, thallium, trash, and turbidity<sup>4</sup>.

The CWA requires the California Environmental Protection Agency (CalEPA) to develop Total Maximum Daily Loads (TMDLs) for impaired waters. The statute addresses how the department identifies impaired waters, develops TMDLs, and prepares implementation plans to achieve the needed pollution reductions in the watershed so that the impaired stream will meet applicable standards (EPA 1999). The San Diego Regional Water Quality Control Board has initiated efforts to develop TMDLs for sediments and trash in the Tijuana River and Estuary, however, no adopted TMDLs for either currently exist<sup>5</sup>. The designation of beneficial uses for waters of the State of California is mandated by the Porter-Cologne Water Quality Control Act. Water quality for designated beneficial uses is protected by the state and works in tandem with sections 303 and 305 of the CWA.

The Tijuana River National Estuarine Research Reserve (NERR), with support from a NOAA Marine Debris Removal Grant, has been working since 2014 to remove debris from the Tijuana River NERR and prevent further debris from washing down the Tijuana River watershed. The effort includes aid from the Southwest Wetlands Interpretive Association, California State Parks, WiLD Coast, and Surfrider to remove and prevent debris in the Tijuana River Valley<sup>6</sup>. California State Parks also removes sediment and debris from Goat Canyon in specially constructed sediment basins to prevent sediment contamination from entering the Tijuana River Estuary.

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<sup>3</sup> Section 305(b) of the Clean Water Act (CWA) requires each state to provide a list, known as the 303(d) List, which identifies those streams or lakes that do not meet surface water quality standards as "impaired waters."

<sup>4</sup> San Diego County Water Authority. 2013. San Diego Integrated Regional Water Management Plan, Watershed Characteristics. Available at: [http://sdirwmp.org/pdf/SDIRWM\\_05\\_Watersheds\\_Sep2013.pdf](http://sdirwmp.org/pdf/SDIRWM_05_Watersheds_Sep2013.pdf)

<sup>5</sup> State of California Water Boards. 2017. TMDLs in Progress. Available at: [https://www.waterboards.ca.gov/sandiego/water\\_issues/programs/tmdls/tmdlprogress.shtml](https://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/tmdlprogress.shtml)

<sup>6</sup> NOAA 2017, Marine Debris Program. Accessed 1/2/18 <https://marinedebris.noaa.gov/removal-projects/tijuana-river-national-estuarine-research-reserve-marine-debris-cleanup-and#prettyPhoto>

### *Waters of the United States*

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, as defined in the *Corps of Engineers Wetlands Delineation Manual*, are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “non-wetland waters” and are often characterized by an ordinary high water mark (OHWM). Non-wetland waters generally include lakes, rivers, streams, and other open-water habitats<sup>7</sup>.

During a site reconnaissance visit, it was determined that the Study Area contains approximately 2.59 acres of potentially jurisdictional non-wetland waters and 7.00 acres of potentially jurisdictional wetland waters. Table 7.1 below summarizes the potential jurisdictional areas within the Study Area, which are detailed in Appendix B (Wetland Delineation Report).

**Table 7.1 Summary of Potential Jurisdictional Areas within the Study Area**

Potentially Jurisdictional Features	Acres (Linear Feet [l.f.])
<i>Wetlands</i>	
Detention basin wetland	3.23
Emergent marsh	2.99
Seasonal wetland depression	0.53
Wetland ditch	0.25
<b>TOTAL</b>	<b>7.00</b>
<i>Non-Wetlands</i>	
Ephemeral stream	1.88 (4,112 l.f.)
Perennial stream	0.71 (146 l.f.)
<b>TOTAL</b>	<b>2.59 (4,258 l.f.)</b>

### Wetland Waters

#### **Detention Basin Wetland**

There were five wetlands located in manmade detention basins within the Study Area (see the Wetland Delineation Report in Appendix B). These detention basins are connected by concrete culverts on the east and west ends, and there are periodic inlet culverts on the north banks. These basins were designed to capture stormwater and surface runoff, and the basins are maintained periodically by mowing. Seasonal precipitation is a clear influence on these basins, but the wetland features were inundated or saturated over

<sup>7</sup> Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways, Experiment Station, Vicksburg, Miss. Available at: <http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf>.

large areas during the October 2017 site visit, and therefore it is assumed these features receive urban runoff throughout the year. Much of the vegetation in each of the detention basins had recently been mowed. No outlets were observed in these basins; as such, they do not appear to have a surface hydrologic connection to any other potential Waters of the U.S. located outside of the basins.

### **Emergent Marsh**

Three emergent marsh wetlands were mapped in areas that met the three wetland criteria and were characterized by species typical of areas that experience prolonged inundation, such as pickleweed (*Salicornia pacifica*; OBL) and cattails (*Typha spp.*; OBL)(refer to the Wetland Delineation Report in Appendix B).

### **Seasonal Wetland Depression**

Fourteen seasonal wetland depressions were mapped in shallow, closed depressions that are seasonally ponded or saturated for a duration sufficient to allow the formation of wetland characteristics, but insufficient to support marsh vegetation (Appendix B). Seasonal wetland depressions were typically characterized by non-native annual species, though in one seasonal wetland depression, mulefat (*Baccharis salicifolia*; FAC) was a dominant species. Seasonal wetland depressions contained generalist wetland species; no species were observed that are characteristic of vernal pools in the region, such as short woolly marbles (*Psilocarphus brevissimus* FACW) and slender woolly marbles (*P. tenellus*; OBL).

### **Wetland Ditch**

Two wetland ditches were mapped within a concrete drainage channel that is located just to the east of the Tijuana River, and appear to drain to the Tijuana River at the west end of the ditch.

### Non-Wetland Waters

The Study Area contains two categories of non-wetland waters; ephemeral and perennial stream. All mapped features are likely to be considered jurisdictional by the Corps. Just like the wetland waters, the majority of these features occur in areas that have been heavily altered by human activity.

### **Ephemeral Stream**

Ephemeral streams are episodic stream channels that appear to convey flows only during and immediately after precipitation events. Many of these features are narrow, deeply incised channels located on steep slopes and have a single low-flow channel with a small or non-existent active floodplain and no terrace. However, the category also includes features that have broader floodplains or concrete channelized portions of larger streams (Smugglers Gulch). Many of these features receive runoff from manmade features such as concrete culverts that convey urban runoff and v-shaped drainages. The mapped ephemeral streams are low gradient and discharge channels that are located in a highly erodible sedimentary substrate in coastal scrub vegetation.

### **Perennial Stream**

The Tijuana River is the single perennial stream crossing the Study Area. The Tijuana River has a 1,750-square-mile watershed, which starts on undeveloped uplands of the U.S. and Mexico, flows through densely

developed Tijuana, and then returns back into the U.S. before discharging into the Tijuana Estuary and the Pacific Ocean. The reach of the Tijuana River within the Study Area is entirely a maintained concrete flood control channel. Although sediment has accumulated on the concrete channel bottom, the sediment is periodically removed as part of regular channel maintenance activities.

The perennial stream mapped within the Study Area consisted of a narrow low-flow channel with a broad active floodplain. At the time of the October 2017 site visit, the low-flow channel was flowing and had a vegetated fringe dominated by watercress (*Nasturtium officinale*; *OBL*). Portions of the active floodplain had a thin layer of sparsely vegetated sediment, but much of the sediment and vegetation had been cleared as part of regular channel maintenance activities. The Tijuana River channel was not accessible at the time of the October 2017 survey and was assessed with binoculars and aerial imagery (Google Earth 2017) analysis. OHWM indicators observed included ripples, drift and/or debris, benches, sediment deposition, and water marks (on the concrete channel banks).

See the Biological Survey Report in Appendix C for more detail regarding the wetland and non-wetland waters present within the Study Area.

### *Stream Crossings*

#### Western Segment

Within the Western Segment, streams S1-S5 cross the border and drain from south to north (Figure 7.1). These streams are generally intermittent, but may still erode portions of the Study Area. Smugglers Gulch is an area where erosion and sedimentation is currently very active. Increased runoff from development in Mexico is causing incision of the stream channel and heavy sedimentation, which flows through the Study Area into the Tijuana River Estuary. A large culvert under a recently constructed Border Patrol road allows passage of water and sediment into the Border Field State Park to the north, where sediment is removed by State Park programs to protect water quality in the Tijuana River Estuary.

The Tijuana River Floodway, a concrete lined channel between two levees, also crosses the Western Segment near the San Ysidro POE. The Tijuana River washes considerable sediment and trash from Mexico into the floodway, which tends to spread out and settle just upstream of Dairy Mart Road.

#### Northern Levee Segment

The Northern Levee Segment is unique in that it drains directly into the Tijuana River, which is located adjacent to the Study Area. The Study Area is elevated on the man-made levee and drains south to this perennial stream, which flows from the south to the north. The rip-rap along the edges of the levee is designed to minimize erosion of the area.

#### Central Segment

This segment has two stream crossings, S-10 and S-11, which flow from north to south (opposite direction from the Western Segment). S-10 and S-11 both flow from the northern side of the border to the southern side of the border (Figure 7.1). However, this section of the Study Area is fairly flat and is not subject to a rapid stream flow.

### Eastern Segment

This segment has several stream crossings, S-12- S-15, that flow from the higher elevations of Otay Mountain in the north across the Study Area and into Mexico to the south (Figure 7.1). Streams in this section of the Study Area are intermittent and are not anticipated to result in a large amount of erosion.

#### **7.1.3 Floodplains**

A floodplain is the area adjacent to a river, creek, lake, stream, or other open waterway that is subject to flooding. If an area is in the 100-year floodplain, there is a 1 in 100 chance in any given year that the area will flood. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were reviewed to identify project locations within mapped floodplains (FEMA 2012). The FIRMs are official maps of a community on which FEMA has delineated both special hazard areas and the risk premium zones applicable to the community. According to FEMA FIRMs (Panels 06073C2161G, 06073C2162G, 06073C22166G, 06073C2170G, and 06073C2200G), portions of the Study Area do include areas designated as regulated floodways (Tijuana River Floodway) and being within a 100-year floodplain<sup>8</sup>. The Northern Levee Segment is the one area that is completely within the 100-year floodplain. The Eastern Segment is the only area identified as being completely outside of the 100-year floodplain. The flood hazard zones identified within the Study Area include:

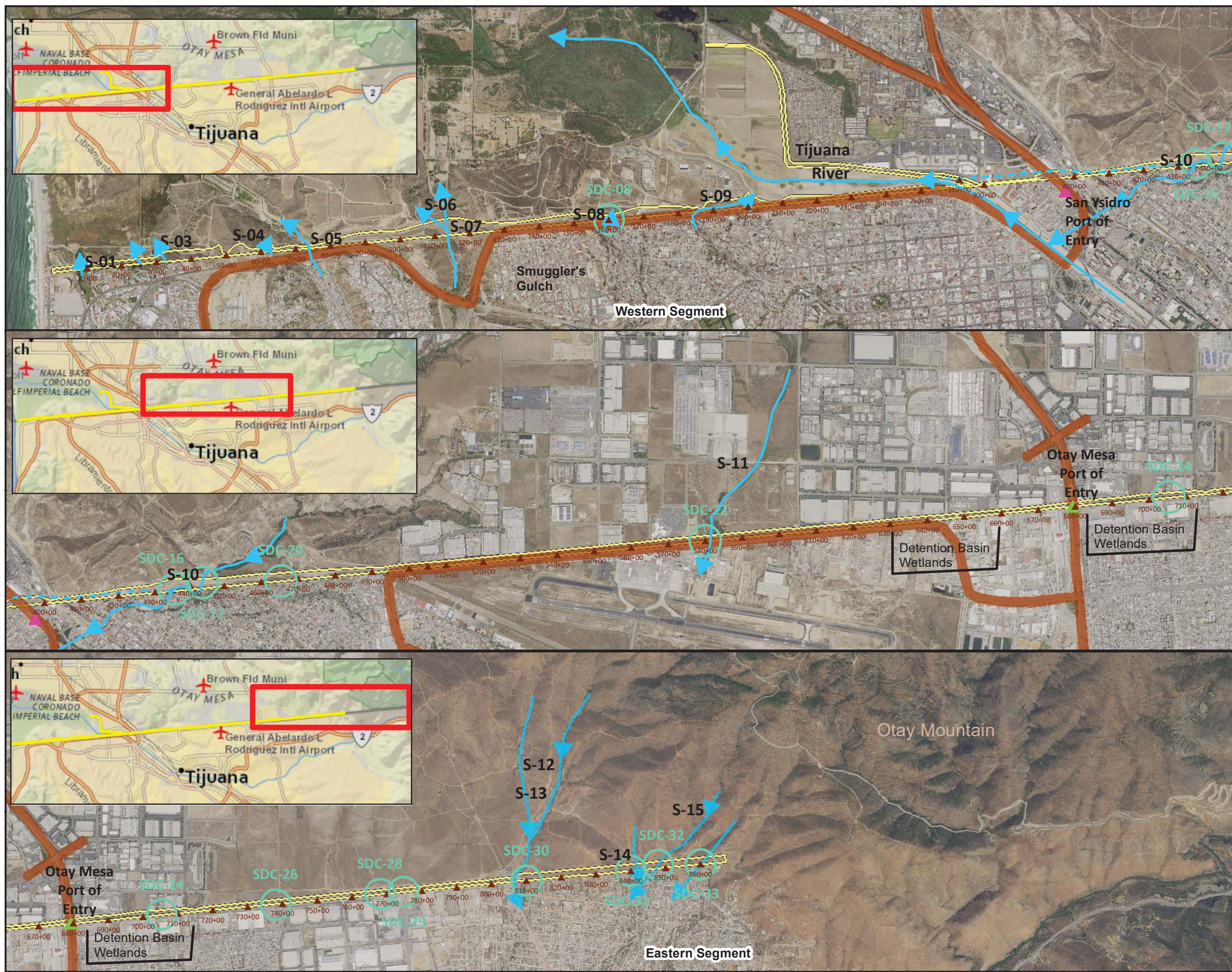
- Zone A - Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage.
- Zone AE - The base floodplain, inundated by 1% annual chance of flooding, for which base flood elevations have been determined.
- Zone X (shaded) - Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.
- Zone X (unshaded) - Area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level. Zone X is the area determined to be outside the 500-year flood and protected by levee from the 100-year flood.

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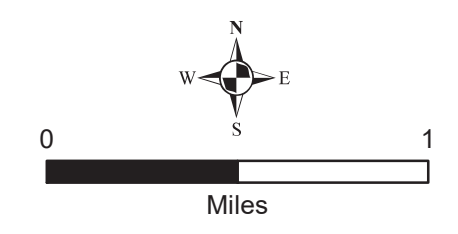
<sup>8</sup> FEMA's National Flood Hazard Layer (Official). 2012.  
<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-117.13990900512681,32.51154406283972,-116.80757257934603,32.6070343059097>



Figure 7.1  
Streams Crossing the Project Site



- Project Site
- SDC-XX Hardened Stream Infrastructure Proposed
- S-XX Streams with Direction of Flow
- Channel
- Freeways
- Otay Mesa Port of Entry
- San Ysidro Port of Entry
- Engineering Plans Station Numbers



Map Prepared Date: 4/23/2018  
Map Prepared By: pkobylarz  
Base Source: Esri Streaming - NAIP 2016  
Data Source(s): WRA



## **7.2 ENVIRONMENTAL CONSEQUENCES**

The Project is not bound by Section 404 of the Clean Water Act (CWA) and therefore CBP is not required to abide by its rules and regulations. Nevertheless, CBP recognizes the importance of environmental stewardship and will provide post-construction determinations of impacts to determine if and where additional stewardship may be necessary, given the availability of appropriate funds.

### **7.2.1 Groundwater**

The likelihood for groundwater contamination due to road improvements, fence installation, or installation of drainage systems will be negligible due to the implementation of BMPs listed in Section 1.5.4, including the implementation of a SPCCP and the natural filtration of soils overlying the aquifers in the Study Area. The all-weather road has been constructed across the most challenging terrain of the Western Segment, however the addition of approximately 10 miles of new all-weather road across the Central and Eastern Segments would result in a permanent addition of new all-weather (gravel) road surfaces over approximately 20 acres of land (assuming a 15-foot wide road). This could result in an increase in runoff from the site, and a potential decrease in groundwater infiltration, unless detention/recharge basins are incorporated into the road design. With detention/recharge basins incorporated, construction and operation of the all-weather road is anticipated to have a negligible impact on groundwater recharge.

The Project will require water from the local supply, or recycled water when readily available at the Water Treatment Plant, for road construction and fugitive dust suppression during construction activities. It is assumed that each 8-hour construction day would require two 10,000-gallon water trucks to dampen the dirt roads in order to minimize fugitive dust. It is assumed that each truck would be refilled two times throughout the work day. With the assumption of 240 total work days and two refills per truck, it is assumed that about 61 acre feet of water will be used for the purpose of fugitive dust minimization over the course of about a year's construction. This temporary demand would not have a permanent impact on the local water supply, which is drawn from a diverse set of water sources. Groundwater quality, in addition to groundwater supply, would not permanently be impacted as a result of the Project.

### **7.2.2 Surface Water**

Implementation of the Project will involve site preparation, earthwork, and grading in order to remove and install the primary fence, install the lighting and communication system, construct the all-weather road, and other various improvements. Construction activities associated with Project implementation could also temporarily affect surface water quality during the construction phase and could result in a temporary increase of sedimentation and/or erosion. A SWPPP will be prepared by the contractor prior to construction and will be implemented with the other BMPs listed in Section 1.5.4 to minimize temporary impacts to the waters present.

BMPs for the handling and storage of hazardous substances, such as fuel, lubricants, and herbicides used during construction, would be taken to ensure that no hazardous substances would enter adjacent water bodies. A SPCCP would be in place prior to the start of construction, and all personnel would be briefed on the implementation and responsibilities of this plan. A more detailed description of the measures related to hazards and hazardous materials is found in Section 11 Hazardous Materials of this ESP.

*Waters of the U.S.*

The wetlands and non-wetland waters will be avoided to the extent feasible and impact minimization measures, as listed in Section 1.5.4, will be implemented. In areas that cannot otherwise be avoided, some wetlands and waters of the U.S. will be impacted by the planned Project due to the proposed hardening of stream channels and disturbance caused by construction. This disturbance would result from site preparation, installation of fence replacement materials, the hardening of many stream channels (SDC Crossings on Figure 7.1) across the Study Area, and construction of the all-weather road. Therefore, the Project will result in both permanent and temporary impacts to waters of the U.S. as described in Table 7.1. Based on the results of a final impact assessment and availability of funds, wetland areas will be restored as near to pre-construction conditions as possible (revegetated with appropriate native species) and permanent impacts will be offset in a manner consistent with regional standards.

*Stream Crossings*

The Tijuana River, is a perennial stream that crosses the Study Area and also receives runoff from uplands, some of which are also in the Study Area. The majority of the streams crossing the Study Area are intermittent and may not be present during construction. The Project design includes appropriately sized accommodations for stream crossings, including operable gates (see SDC crossings on Figure 7.1) that will be automatically opened during storm events to allow large volumes of water to pass through. The current fence is a solid piece of metal, which does not allow water to pass except where culverts exist.

Some stream crossings as well as jurisdictional wetlands and waters will be impacted from the Project implementation (see SDC crossings in Figure 7.1). Most stream crossings, and nearby portions of the all-weather road surface will be hardened with concrete, and that hardening of the stream channel in some cases will extend northward beyond the Roosevelt Reservation to the full width of the Study Area. Hardening of these ephemeral streams will result in increased runoff velocities and limit the ability for vegetation to grow in the stream channels within the Study Area; therefore, these are permanent impacts resulting from the project.

**7.2.3 Floodplains**

The bollard-style wall with the all-weather road paralleling it are hydro-modifications that could impact hydrology and natural hydrologic flows. Some potential impacts of the border fence include increased risk of flooding due to increased runoff velocities, potentially obstructed waterways, slightly reduced infiltration and possibly minimal reductions in groundwater recharge.

The proposed Project would replace the existing fence in situ or marginally offset from the current primary fence position. However, the majority of the fence to be removed is a solid piece of steel. The new bollard-style wall would be made up of individual steel pillars that would more easily allow flow across the fence boundary. In addition, the all-weather road could marginally increase runoff velocities across the 60-350-foot wide Study Area. Considering the Study Area traverses over 14 miles, and concentrates all runoff flows into the Tijuana River this could be a moderate impact. Adverse effects would include increased 'flashiness' of runoff with higher peak flows over shorter durations.

**SECTION 8.0**

**BIOLOGICAL RESOURCES (VEGETATION, WILDLIFE, AQUATIC SPECIES, SPECIAL  
STATUS SPECIES)**

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## **8.0 BIOLOGICAL RESOURCES (VEGETATION, WILDLIFE, AQUATIC SPECIES, SPECIAL STATUS SPECIES)**

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### **8.1 AFFECTED ENVIRONMENT**

The Study Area in this document, as described in previous sections, refers to the area in which permanent and/or temporary impacts may occur from Project activities, which is primarily constrained to the space between the Primary and Secondary Fences which includes the 60-foot-wide strip of land along the United States/Mexico border called the Roosevelt Reservation and additional lands occupied by Border Patrol roads and facilities that extend northward varying widths up to a maximum of approximately 350 feet. The Study Area also includes a narrow piece of land that runs along the northern levee of the Tijuana River Valley, roughly parallel to Camino De La Plaza.

South of the Study Area lies Mexico and mainly urban land uses, dominated by the city of Tijuana. North of the Study Area is a mix of open space and urban land use. Open areas are located in the western areas near the Tijuana River and associated estuary and river valley (Tijuana River County Open Space Preserve and Border Field State Park) and in the eastern areas at the base of Otay Mountain and Otay Mesa (Otay County Open Space Preserve), approximately 14 miles from the western edge of the Study Area. Adjacent to the project and in between these two open areas are a mix of urban and open space land uses: the city of San Ysidro, the San Ysidro POE, the Otay POE, and Pacific Gateway Park open space area. Within the Study Area, the land use is a combination of disturbed land, coastal scrublands, disturbed wetlands, revegetated areas, and artificial hardscape (paved and unpaved access roads). Some of these land use types are suitable habitat for threatened species.

The Study Area occurs within the Humid Temperate Domain, Mediterranean Division, California Coastal Chaparral Forest, and Shrub Province. Regional climate is defined by hot, dry summers and rainy, mild winters. Average annual temperatures range from 57 to 71° F in San Diego. Average low temperatures range from 48° F in December to 66° F in August. Average high temperatures range from 65° F in December to 77° F in August. The record low and record high temperatures for San Diego are 29° F and 111° F, respectively. Average precipitation totals 10.34 inches per year. The elevation of the Study Area ranges from 40 feet on the western limit of the Study Area near the Pacific Ocean to 600 feet on the eastern end of the Study Area on Otay Mesa. The 14-mile stretch from west to east that constitutes the Study Area incorporates several habitat types.

The City of San Diego Multiple Species Conservation Plan (MSCP) has protected areas in and near the Study Area. The MSCP is not intended to limit CBP or other law enforcement activities. The MSCP provides CBP and other enforcement agencies an exemption for their activities, with the preference that CBP use existing infrastructure when possible in order to minimize impacts to established protected areas.

The patrol roads, access roads, and surrounding areas within the Study Area are maintained by CBP. Roads, brow ditches, and associated vegetation are regularly mowed, disced, or otherwise disturbed as a part of routine maintenance west of the San Ysidro POE. All vegetation areas between the primary and secondary fencing east of the San Ysidro POE are actively managed to limit the growth of vegetation to preserve sight lines for USBP agents and reduce concealment for cross border violators.

The following pages discuss the existing vegetation, wildlife, aquatic resources, federal-listed species, and critical habitat in the Study Area and potential impacts from the Project. More details regarding survey methods, community classifications, wetlands and waters field evaluation summaries and BMPs can be seen in the Biological Survey Report in Appendix C.

### 8.1.1 Plants and Vegetation Communities

Approximately 2,447 species of plants have been documented within San Diego County. Of these, 1,689 are native to the county and 758 species are non-native. Biologists documented 180 species of plants within the Study Area during site visits, including 85 native species and 95 species of non-native plants. These numbers and diversity in plant types can be attributed to the county's geography and the variety of habitats found within it. To the west lies the Pacific Ocean; the coastal plain runs from the ocean to the foothills of the Peninsular Range, the mountain range that bisects the county from north to south; and East of the Peninsular Range is the Colorado Desert, a western subset of the Sonoran Desert. Each region has its own unique climate and vegetation communities.

The following are the upland vegetation communities delineated and observed within the Study Area. Wetland and riparian habitats are described in the Aquatic section.

#### *Menzies' goldenbush scrub (Isocoma menziesii Shrubland Alliance)*

Approximately 1.56 acres of Menzies' goldenbush scrub (*Isocoma menziesii* Shrubland Alliance) was mapped in the Study Area, in the far eastern portion of the Study Area. Menzies' goldenbush typically forms stands on sandy soils, in association with herbs and grasses. Most of these stands are the result of recent or frequent disturbance from fire, flooding, erosion, or human-related clearing. In Southern California, persistent stands composed primarily of low, mat-like plants typically occur on sea bluffs and terraces. They may contain halophytes such as California saltbush (*Atriplex californica*) and spreading alkaliweed (*Cressa truxillensis*).



**Photograph 1. *Isocoma menziesii* Shrubland Alliance.**

In general, the alliance is characterized by Menzies' goldenbush dominant or codominant in the shrub layer, with subdominant shrubs or subshrubs such as California sagebrush, broom baccharis (*Baccharis sarothroides*), California matchweed (*Gutierrezia californica*), and Virginia glasswort (*Salicornia depressa*). Shrubs are typically less than one meter tall; cover is open to intermittent. The herbaceous layer is variable. This community is a Tier II community per the MSCP and is considered sensitive.



California brittlebrush scrub (*Encelia californica* Shrubland Alliance)

Approximately 3.41 acres of California brittlebrush scrub (*Encelia californica* Shrubland Alliance) were mapped in the Study Area, predominantly in the western portion of the Study Area where the marine influence (i.e., Marine Layer) is prevalent. California brittlebrush scrub is known in California from the Southern California Coast and Southern California Mountains and Valley Regions from Santa Barbara to San Diego County. This vegetation alliance is typically situated on sunny steep slopes near the coast on soils derived from sandstone, shale, or volcanics.



**Photograph 2a. *Encelia californica* Shrubland Alliance.**

Areas mapped as California brittlebrush scrub are typically dominated by California brittlebrush, a summer drought deciduous shrub in the sunflower family (Asteraceae); with other co-dominant shrub species including California [coastal] sage brush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*); as well as with other shrubs and cacti including fourwing saltbush (*Atriplex canescens* var. *canescens*), slenderleaf saltbush (*Atriplex canescens* var. *linearis*), big saltbush (*Atriplex lentiformis*), coastal cholla (*Cylindropuntia prolifera*), and San Diego County viguiera (*Bahiopsis* [*Viguiera*] *laciniata*) present at lower densities. The herbaceous layer in this community is dominated by non-native, invasive grasses and forbs including foxtail chess (*Bromus madritensis*) and crystalline iceplant (*Mesembryanthemum crystallinum*). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

California sagebrush scrub (*Artemisia californica* Shrubland Alliance)

Approximately 7.65 acres of California sagebrush scrub (*Artemisia californica* Shrubland Alliance) were mapped in the Study Area, predominantly on slopes and mesas in the western portion. California sagebrush scrub is known in California from the Northern California Coast, to the Southern California Coast, and Southern California Mountain and Valley Regions from Marin County to San Diego County. This vegetation alliance is typically situated on slopes that are usually steep and rarely flooded, on low-gradient deposits along streams, and on alluvial or colluvial- derived, shallow soils.



**Photograph 3. *Artemisia californica* Shrubland Alliance.**

Areas mapped as California sagebrush scrub are typically dominated by California sagebrush with other shrub species present including California buckwheat, Menzies' goldenbush (*Isocoma menziesii* var. *menziesii*), and saltbush (*Atriplex* spp.). Herbaceous cover varies, becoming sparser when shrub cover is denser. Herbaceous species present are typically non-native, invasive grasses and forbs including foxtail chess, ripgut brome (*Bromus diandrus*), and crown daisy (*Glebionis coronaria*). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance)

Approximately 11.57 acres of California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance) were mapped in the Study Area, predominantly on slopes in the central portion of the Study Area. California buckwheat scrub is known in California from the Central California Coast Ranges to the Mojave Desert and Southern California Mountain and Valley Regions, from Alameda County to Imperial County. This vegetation alliance is typically situated on upland slopes, intermittently flooded arroyos, channels and washes, and rarely flooded low-gradient deposits on coarse, well drained, moderately acidic to slightly saline soils.



**Photograph 4. *Eriogonum fasciculatum* Shrubland Alliance.**

Areas mapped as California buckwheat scrub are typically dominated by California buckwheat with other shrub species present including California sagebrush and broom *Baccharis* (*Baccharis sarothroides*). Occasional coastal cholla is present as well in the western portion of the Study Area. Herbaceous species present are typically non-native, invasive grasses including slim oat (*Avena barbata*), foxtail chess, and rigput brome. This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

California sagebrush-California buckwheat scrub (*Artemisia californica* – *Eriogonum fasciculatum* Shrubland Alliance)

Approximately 3.01 acres of California sagebrush–California buckwheat scrub (*Artemisia californica* – *Eriogonum fasciculatum* Shrubland Alliance) were mapped in the Study Area, predominantly on slopes in the western portion of the Study Area. California sagebrush – California buckwheat scrub is known in California from the Central California Coast Ranges to the Southern California Mountain and Valley Regions, from Solano County to San Diego County. This vegetation alliance is typically situated on steep, south-facing slopes on colluvial-derived soils.



**Photograph 5. *Artemisia californica* - *Eriogonum fasciculatum* Shrubland Alliance.**

Areas mapped as California sagebrush–California buckwheat scrub are typically co-dominated by California buckwheat and California sagebrush, as well as by San Diego County viguiera, and saltbush (*Atriplex* spp.). Herbaceous species present are typically non-native, invasive grasses and forbs including slim oat, rigput brome, and Russian thistle (*Salsola australis*). This community would be considered a subset of coastal sage scrub, which is a Tier II community per the MSCP, and would thus be considered sensitive.

Laurel sumac scrub (*Malosma laurina* Shrubland Alliance)

Approximately 0.38 acres of Laurel sumac scrub (*Malosma laurina* Shrubland Alliance) was mapped in the Study Area, in the far eastern portion of the Study Area. The alliance has become more common in many areas of western San Diego County, as a result of high-frequency fires in the past few decades. Laurel sumac scrub occurs along the coast from Santa Barbara County, south into northwestern Baja California. The shrub is a consummate resprouter and can resprout from its deep rootcrown multiple times in short succession following fires.



**Photograph 5. *Malosma laurina* Shrubland Alliance.**

Areas mapped as laurel sumac scrub generally include laurel sumac as the dominant or codominant species in the shrub canopy, with California sagebrush, *Ceanothus* spp.), bush monkey flower (*Mimulus aurantiacus*), California brittlebush (*Encelia californica*), coastal buckwheat (*Eriogonum cinereum*), California buckwheat (*Eriogonum fasciculatum*), toyon (*Heteromeles arbutifolia*), chaparral yucca (*Hesperoyucca whipplei*), snapdragon penstemon (*Keckiella antirrhinoides*), hollyleaf redberry (*Rhamnus ilicifolia*), lemonade berry (*Rhus integrifolia*), sugar sumac (*Rhus ovata*), purple sage (*Salvia leucophylla*), black sage (*Salvia mellifera*), Parry's tetraococcus (*Tetraococcus dioicus*), and poison oak (*Toxicodendron diversilobum*) occurring as subdominants. Emergent trees of southern black walnut (*Juglans californica*), coast live oak (*Quercus agrifolia*), or California sycamore (*Platanus racemose*) may be present. Shrubs are usually less than 5 meters in height and the canopy is open to continuous. The herbaceous layer is generally sparse. This community is a Tier III community per the MSCP and is considered sensitive.

Jojoba scrub (*Simmondsia chinensis* Provisional Shrubland Alliance)

Approximately 0.67 acres of Jojoba scrub (*Simmondsia chinensis* Provisional Shrubland Alliance) were mapped in the Study Area, solely on the east-facing slope directly west of Smuggler's Gulch. Jojoba is a widespread desert shrub of the Sonoran Desert that ranges into southwestern California in Riverside and San Diego counties. Jojoba scrub is a provisional alliance and statewide distribution data is not published in the literature. In San Diego County, this alliance is typically dominated by jojoba, in association with San Diego County viguiera and a number of sub-dominant succulent species including San Diego barrel cactus and cholla (*Cylindropuntia* spp., Sproul).



**Photograph 6. *Simmondsia chinensis* Provisional Shrubland Alliance.**

Areas mapped as jojoba scrub within the Study Area are typically dominated by jojoba with other codominant shrubs including bushrue (*Cneoridium dumosum*), deerweed (*Acmispon glaber*), and California buckwheat. Sparse cover of San Diego barrel cactus is also present in this community. Herbaceous species present are typically non-native, invasive grasses including foxtail chess, and goldentop (*Lamarckia aurea*),

with some native forb cover including virgate wreath-plant (*Stephanomeria virgata*). This community does not crosswalk to any MSCP-sensitive communities. However, CDFW ranks this community as an S3, meaning it is vulnerable in California and thus would be considered sensitive.

### Non-native grassland

The Study Area contains approximately 93.89 acres of non-native grassland, predominantly located in the eastern portion of the Study Area on flat to sloped areas, which have been previously disturbed. This description is based on the group level, which is the hierarchical level above alliance. The group level is a useful classification when distinction cannot be made to the alliance or association level, such as in the case of highly mixed non-native grass and non-native forb species. This vegetation type is widespread and found in variable situations, often in areas where ruderal floras have replaced native types due to repeated soil disturbance and the introduction of non-native species, as is the case in the Study Area. The shrub and canopy layer must be less than 5 percent absolute cover to meet the requirements of this group.



**Photograph 7. Non-Native Grassland.**

In the Study Area, numerous non-native species occur, and the emergent shrub cover is less than 5 percent. Common grass species in the Study Area include ryegrass (*Festuca perennis*), Bermuda grass (*Cynodon dactylon*), foxtail barley (*Hordeum murinum*), purple fountain grass (*Pennisetum setaceum*), and slim oat. Also included within this community are expansive areas that could classify as non-native forblands, where grasses have been continuously mowed, keeping grasses short and favoring perennial or summer annual non-native invasive forbs including iceplant (*Carpobrotus edulis*), crystalline iceplant, small flowered iceplant (*Mesembryanthemum nodiflorum*), Russian thistle, and crown daisy.

### Revegetated Coastal Sage Scrub

The Study Area contains approximately 40.78 acres of restored coastal sage scrub, predominantly located in the western and central portions of the Study Area on flat to sloped areas, where previous disturbance has occurred due to construction projects and that have since been regraded and revegetated. The most expansive restored shrublands are located in the western portion of the Study Area near Smuggler's Gulch. Restored shrublands are predominantly on graded 2 to 1 slopes and flat areas in between slopes. Restored shrublands vary in shrub cover from approximately 5 to 80 percent shrub cover, likely due to varying revegetation treatments.



**Photograph 8. Revegetated Coastal Sage Scrub.**

Common shrub species in this community include California sagebrush, California buckwheat, San Diego County viguiera, fourwing saltbush, slenderleaf saltbush, and big saltbush in the western portions of the

Study Area. Within the central portion of the Study Area, the aforementioned species are present, along with brittlebush (*Encelia farinosa*), which is codominant, and a sparse cover of the rare San Diego bur sage (*Ambrosia chenopodiifolia*, CNPS Rank 2B.1). Non-native grasses and forbs including ripgut brome, foxtail chess, crystalline iceplant, small flowered iceplant, Russian thistle, and crown daisy dominate the herbaceous layer. This is a coastal sage scrub community, which is a Tier II community per the MSCP, and would be considered sensitive.

### Urban/Developed

The Study Area contains approximately 81.75 acres of developed areas. These areas are characterized by paved and unpaved public and restricted roads and access routes, some within county or state-managed lands, buildings, existing fence and border security infrastructure, and other concrete structures. These developed land areas are largely devoid of vegetation and could not in their current condition support vegetation or vegetation communities.



**Photograph 9. Urban/Developed.**

### Disturbed

The Study Area contains approximately 44.64 acres of disturbed areas, which include bare patches of dirt where vegetation is constantly disturbed or removed such that little to no vegetation persists. Disturbed communities typically occur along the primary fence, where the CBP maintains areas free of vegetation for security purposes, as well as in areas that are constantly disturbed due to vehicle traffic but are not concrete or gravel roads.



**Photograph 10. Disturbed.**

## **8.1.2 Wildlife**

San Diego County boasts high wildlife biodiversity for a county of its size. Over 611 species of birds, 91 species of mammals, 80 species of reptiles and amphibians, and 149 species of invertebrates have been documented within the county. Wildlife documented in and around the Study Area are generally typical of those found in coastal sage scrub, aquatic, and urban environments. Portions of the Study Area are adjacent to or include relatively undisturbed habitats and host a large variety of birds, with fewer species of mammals, reptiles, and amphibians. Common species associated with these habitats include San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), Cassin's kingbird (*Tyrannus vociferans*), Say's phoebe (*Sayornis saya*), house finch (*Haemorhous mexicanus*), San Diego alligator lizard (*Elgaria multicarinata webbii*), southern Pacific rattlesnake (*Crotalus oregonus helleri*), western side-blotched lizard (*Uta stansburiana elegans*), and California toad (*Anaxyrus boreas halophilus*). During field surveys in 2017, biologists recorded all wildlife species that were incidentally observed. Those species are listed in Table 8-1 below.

**Table 8.1 Wildlife Observed in Study Area**

<b>Common Name</b>	<b>Species Name</b>
<b>Mammals</b>	
California ground squirrel	<i>Otospermophilus beecheyi</i>
San Diego black-tailed jackrabbit	<i>Lepus californica bennettii</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
<b>Birds</b>	
Turkey vulture	<i>Cathartes aura</i>
White-tailed kite	<i>Elanus leucurus</i>
Northern harrier	<i>Circus cyaneus</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Western gull	<i>Larus occidentalis</i>
Rock pigeon	<i>Columba livia</i>
Eurasian collared-dove	<i>Streptopelia decaocto</i>
Mourning dove	<i>Zenaida macroura</i>
Burrowing owl	<i>Athene cunicularia</i>
Anna's hummingbird	<i>Calypte anna</i>
American kestrel	<i>Falco sparverius</i>
Peregrine falcon	<i>Falco peregrinus</i>
Black phoebe	<i>Sayornis nigricans</i>
Say's phoebe	<i>Sayornis saya</i>
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>
Cassin's kingbird	<i>Tyrannus vociferans</i>
American crow	<i>Corvus brachyrhynchos</i>
Rock wren	<i>Salpinctes obsoletus</i>
Bewick's wren	<i>Thryomanes bewickii</i>
Bewick's wren	<i>Thryomanes bewickii</i>
California gnatcatcher	<i>Polioptila californica</i>
Wrentit	<i>Chamaea fasciata</i>
Northern mockingbird	<i>Mimus polyglottos</i>
European starling	<i>Sturnus vulgaris</i>
Orange-crowned warbler	<i>Oreothlypis celata</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>
California towhee	<i>Melospiza crissalis</i>
California towhee	<i>Melospiza crissalis</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>

Brewer's blackbird	<i>Euphagus cyanocephalus</i>
House finch	<i>Haemorhous mexicanus</i>
American goldfinch	<i>Spinus tristis</i>
<b>Reptiles and Amphibians</b>	
Orange-throated whiptail	<i>Aspidoscelis hyperythra</i>
Common side-blotched lizard	<i>Uta stansburiana</i>
Gopher snake	<i>Pituophis catenifer</i>
Southern Pacific rattlesnake	<i>Crotalus oreganus helleri</i>
Western toad	<i>Anaxyrus boreas</i>
Pacific tree frog	<i>Pseudacris regilla</i>
Two-striped garter snake	<i>Thamnophis hammondi</i>
<b>Invertebrates</b>	
Water fleas	Order Cladocera
Seed shrimp	Class Ostracoda
Copepods	Subclass Copepoda
Dragonfly (adult and larva)	Infraorder Anisoptera
Mosquito (larva)	Family Culicidae
Predaceous diving beetle (adults and larvae)	Family Dystiscidae
Water boatmen	Family: Corixidae
Pond snails	Family Physidae
Midge (larvae)	Family Chironomidae
Damselfly (adults)	Family Coenagrionidae, including Genus <i>Argia</i>

### 8.1.3 Aquatic Resources

Aquatic habitats within the Study Area are primarily limited to engineered natural or man-made drainages and detention basins throughout the Study Area. The largest drainage is the Tijuana River, a perennial stream flowing north through the city of Tijuana. Throughout much of Tijuana and into a portion of the U.S., the river is a maintained, concrete-lined flood channel consisting of a narrow low-flow channel with a broad active floodplain. Sediment routinely accumulates at the bottom of the channel and is periodically removed. Other drainages include ephemeral streams that flow primarily after rain events. These include drainages within Goat Canyon and Smugglers Gulch, which are both channelized and receive runoff from man-made culverts conveying urban and surface runoff.

A wetland delineation was conducted in October 2017 and determined that the Study Area contains approximately 2.59 acres of potentially jurisdictional non-wetland waters and 7.00 acres of potentially jurisdictional wetland waters. Non-wetland waters include ephemeral streams which consist of deeply incised channels on steep slopes as well as features with broader floodplains or concrete channelized portions of larger streams such as Smugglers Gulch. These features are often located in a highly erodible sedimentary substrate in coastal scrub vegetation. One other non-wetland water was mapped within the Study Area, the Tijuana River. Within the Study Area, the river is entirely a maintained concrete flood control channel with a low flow channel and broad concrete floodplain with accumulated sediment.

Wetland waters included detention basin wetlands, emergent marshes, seasonal wetland depressions, and wetland ditches. Five wetlands were located in manmade detention basins and are connected by concrete culverts on the east and west ends with periodic inlet culverts on the north banks. These basins were designed to capture stormwater and surface runoff and the basins are maintained periodically by mowing.

Three emergent marsh wetlands were mapped in areas that met the three wetland criteria and were characterized by species typical of areas that experience prolonged inundation such as pickleweed (*Salicornia pacifica*) and cattails (*Typha* spp.). One of these features at the west end of the Study Area is a small, remnant salt marsh. This feature is hydrologically connected to the larger salt marsh within the Tijuana Estuary to the north of the Study Area but does not receive any tidal influence.

Fourteen seasonal wetland depressions were mapped throughout the Study Area in shallow, closed depressions that are seasonally ponded or saturated for a duration sufficient to allow for the formation of wetland characteristics but insufficient to support marsh vegetation. Most of the vegetation within these depressions were non-native annuals, although one feature contained mulefat (*Baccharis salicifolia*) as a dominant. None of these depressions contained plant species typical of vernal pools.

Two wetland ditches were mapped within a concrete drainage channel that is located east of the Tijuana River and appear to drain into the river at the west end of the ditch.

#### 8.1.4 Federal-listed Species and Critical Habitat

Ten plant species and 11 wildlife species that are listed as either endangered or threatened under the federal Endangered Species Act have been documented to occur in the vicinity of the Study Area. Within the Study Area, one Federal-listed plant species has a high potential to occur, six are unlikely to occur, and three have no potential to occur (Table 8.2). One Federal-listed wildlife species, the coastal California gnatcatcher, is known to occur in the Study Area. One species has a high potential to occur, three are presumed absent, while the remaining six species have no potential to occur due to the absence of suitable habitat within the Study Area (Table 8.3). Species accounts and occurrence information for each Federal-listed species are detailed below (except for one wildlife species, the Green sea turtle, because it is scientifically impossible for its coastal habitat to exist within the Study Area boundaries).

*San Diego thornmint (Acanthomintha ilicifolia)*. Federal Threatened. Unlikely to occur.

The San Diego thornmint is an annual herb in the mint family (Lamiaceae) native to southwestern San Diego County and northern Baja California, Mexico. It is restricted to certain gabbro and calcareous clay soils in gentle, southeast to west facing slopes. It grows in openings in coastal sage scrub, chaparral, and native grasslands (CDFW 2017b). The Study Area does not contain gabbroic or calcareous clay soils known to support this species. Therefore, this species is unlikely to occur in the Study Area.

*San Diego ambrosia (Ambrosia pumila)*. Federal Endangered. Unlikely to occur.

San Diego ambrosia is a perennial rhizomatous herb in the sunflower family (Asteraceae) native to California and Baja California, where it is found predominantly along upper terraces of rivers and drainages within chaparral, coastal scrub, valley and foothill grassland habitats, and also in vernal pools (CNPS 2017, USFWS 2010a). The species is threatened by development, vehicles, road maintenance activities, and foot traffic. Non-native plants are also a primary conservation threat, as many of them outcompete the San Diego ambrosia (USFWS 2010a). The Study Area does not contain typical habitat. It is also densely overgrown with nonnative plants in most areas. Therefore, this species is unlikely to occur in the Study Area.



*Encinitas baccharis* (*Baccharis vanessae*). Federal Threatened. No potential to occur.

*Encinitas baccharis* is a perennial shrub in the sunflower family (Asteraceae) that is endemic to San Diego County, where it is found in maritime chaparral and Torrey pine forest understory (CNPS 2017, Jepson eFlora 2017). Its known range is from northern San Diego County in the Cleveland National Forest south to Encinitas, and east to Alpine (CDFW 2017c). *Encinitas baccharis* is a pioneering species, often increasing in numbers after disturbance such as fires, or erosional events. Therefore, the species is threatened by succession in fire-suppressed areas, but it is also threatened by development. The Study Area lacks maritime chaparral habitat, and is outside of the known geographic range of the species. Furthermore, this perennial shrub was not observed during the site visits. Therefore, there is no potential for this species to occur within the Study Area.

*Salt marsh bird's beak* (*Chloropyron maritimum* ssp. *maritimum*). Federal Endangered. Unlikely to occur.

Salt marsh bird's beak is an annual herb in the broomrape family (Orobanchaceae) native to coastal salt marshes in central and southern California and northern Baja California, Mexico. The species is hemiparasitic, meaning it draws some of its physiological needs from a host plant. It is able to photosynthesize on its own but relies on a host plant to facilitate uptake of water and nutrients from the ground. Known host plants are saltgrass (*Distichlis spicata*), alkali-heath (*Frankenia salina*), and sturdy bulrush (*Bulboschoenus robustus*), and broadleaf cattail (*Typha latifolia*). The flowers of the salt marsh bird's beak are self-compatible and pollinated by several species of ground-nesting bees. The distribution of seeds and the resulting patchy nature of the species' occurrences are thought to be most influenced by tidal movement and proximity to channels (USFWS 2009a). The Study Area contains one small, remnant salt marsh, which contains some of the associated species, however, this species is dependent on tidal influx, and the salt marsh within the Study Area is not tidally influenced. Therefore, it is unlikely for salt marsh bird's beak to occur within the site.

*Otay tarplant* (*Deinandra conjugens*). Federal Threatened. High potential to occur.

Otay tarplant is an annual herb in the sunflower family (Asteraceae) restricted to southwestern San Diego County and northwestern Baja California. It is typically found on clay soils in grasslands, open coastal sage scrub, and maritime succulent scrub, in elevations of between 80 and 1,000 feet. Habitat loss, degradation, and fragmentation along with nonnative species invasion have been the primary threats to the species' survival. Dependence upon reduced populations of pollinators likely further contributes to the species' decline and loss of genetic variability. Large fluctuations in population size from year to year have been documented (USFWS 2004). The Study Area is located within the heart of the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Study Area. The Study Area contains suitable habitat including coastal scrub and grasslands underlain by clay soils. Therefore, this species has a high potential to occur in the Study Area.

*San Diego button-celery* (*Eryngium aristulatum* var. *parishii*). Federal Endangered. Unlikely to occur.

San Diego button-celery is a biennial or perennial herb in the carrot family (Apiaceae) restricted to the South Coast region of Southern California and Baja California. This species and this variety are closely related to vernal pool habitats on clay soils with a shallow restrictive layer. The majority of vernal pool habitat within the range of this species was lost to development prior to the species listing (USFWS 2010b). The species is almost exclusively found in vernal pools, and typically associated with other obligate vernal pool species such as dwarf woolly-marbles (*Psilocarphus brevissimus*), little mousetail (*Myosurus minimus*), spreading navarretia (*Navarretia fossalis*), and California Orcutt's grass (*Orcuttia californica*) (CDFW 2017a). Like many obligate vernal pool species, San Diego button-celery is specifically adapted to surviving in vernal wet conditions due to the presence of aerenchyma tissue (air channels in the roots) that facilitates necessary gas exchange in submerged plants. Habitat loss, degradation, and fragmentation

along with nonnative species invasion have been the primary threats to the species' survival. Although the Study Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Study Area, the Study Area lacks vernal pool habitat and the associated obligate vernal pool species.

Mexican flannelbush (*Fremontodendron mexicanum*). Federal Endangered. No potential to occur.

The Mexican flannelbush is a shrub in the mallow family (Malvaceae) that is native only to San Diego County, California and Baja California. The genus is believed to be a relic from 60 million years ago when California had a more tropical climate (USFWS 2009b). Mexican flannelbush grows up to six feet tall and has large orange to yellow flowers from March to June. It is found in only a few spots in California, in elevations between sea level and 3,000 feet in chaparral, foothill woodland, and closed-cone pine forests (Calflora 2017). The nearest extant documented occurrences are on Otay mountain, approximately 3 miles to the north of the Study Area, and at higher elevation than the Study Area. Associated species include Tecate cypress (*Hesperocyparis forbesii*), western sycamore (*Platanus racemosa*), and bush poppy (*Dendromecon rigida*) (CDFW 2017a). Mexican flannelbush is found in alluvial benches associated with drainages as well as the associated canyon slopes. Soils most often associated with this plant are silty loams derived from metavolcanic and metabasic bedrock, mapped as San Miguel-Exchequer Association soil series (USFWS 2009b). The Study Area does not contain suitable soils, habitat, or the associated species of the documented occurrences. There is no potential for this species to occur within the Study Area.

Spreading navarretia (*Navarretia fossalis*). Federal Threatened. Unlikely to occur.

Spreading navarretia is an annual herb in the phlox family (Polemoniaceae) restricted to the South Coast region of Southern California and Baja California. This species is found in vernal pool and alkali playa habitat but may also occur in man-made ditches and depressions that have a similar hydrological regime (USFWS 2009c). Occurrences of the species in San Diego County are almost exclusively in vernal pools within complexes of pools and mounds often referred to as 'mima-mounds', whereas occurrences in western Riverside County also occur in alkali playa wetlands (USFWS 2009c). Observed associated species include other obligate vernal pool species such as dwarf wooly-marbles, little mousetail, Otay mesa mint (*Pogogyne nudiuscula*), and California Orcutt's grass (CDFW 2017a). Habitat loss, degradation, and fragmentation along with nonnative species invasion have been the primary threats to the species' survival. Although the Study Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Study Area, the Study Area lacks vernal pool habitat and the associated obligate vernal pool species. Spreading navarretia is unlikely to occur in the Study Area.

California orcutt grass (*Orcuttia californica*). Federal Endangered. Unlikely to occur.

California Orcutt grass is an annual herb in the grass family (Poaceae) restricted to the South Coast region of Southern California and Baja California. This species is exclusively associated with deep vernal pools underlain by clay soils (USFWS 2011a). Observed associated species include other obligate vernal pool species such as San Diego button celery, dwarf wooly-marbles, little mousetail, Otay mesamint, and San Diego mesamint (*Pogogyne abramsii*) (CDFW 2017a). Habitat loss, degradation, and fragmentation, grazing, off-road vehicle use, along with nonnative species invasion have been the primary threats to the species' survival. Although the Study Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Study Area, the Study Area lacks vernal pool habitat and the associated obligate vernal pool species.

Otay mesa mint (*Pogogyne nudiuscula*). Federal Threatened. No potential to occur.

Otay mesa mint is an annual herb in the mint family (Lamiaceae) restricted to vernal pools on Otay Mesa, in San Diego County. Historically, Otay mesa mint also occurred in Baja California at the eastern edge of the City of Tijuana but is now believed to be extirpated in Mexico (USFWS 2011b). This species is exclusively associated with vernal pools. Observed associated species include other obligate vernal pool species such as San Diego button celery, and California Orcutt grass (CDFW 2017a). Habitat loss, degradation, and fragmentation, grazing, off-road vehicle use, along with nonnative species invasion have been the primary threats to the species' survival. Although the Study Area is located within the range of the species, and there are several documented occurrences of the species within less than a mile of the northern border of the Study Area, the Study Area lacks vernal pool habitat and the associated obligate vernal pool species. Otay mesa mint has no potential to occur in the Study Area.

Arroyo toad (*Bufo californicus*). Federal Endangered. No potential to occur.

Arroyo toads are found in washes, streams, arroyos, rivers with shallow gravelly pools, and their adjacent uplands. Adjacent upland habitats consist of sandy banks or terraces in riparian woodlands, where adults burrow into the soil for shelter. Eggs are laid in shallow, quiet streams or ponds with little to no emergent vegetation. The species breeds from March to early June, with metamorphosis occurring in June or July. Newly metamorphosed young remain near pools for several weeks, usually until the pools dry. Adults may migrate locally but are most often found within approximately 0.3 miles of the streams they breed in, though individuals have been observed as far as approximately 1.2 miles away. Adults aestivate seasonally and are nocturnal, except for during the breeding season. Immature arroyo toads are presumed to eat algae, organic debris, and plant tissue, while adults are insectivores, consuming primarily snails, beetles, and ants.

The arroyo toad historically ranged from San Luis Obispo County, California, to northwestern Baja California, Mexico. Today, it is believed to be extirpated from San Luis Obispo County but to persist in northwestern Baja California and in Santa Barbara, Ventura, Los Angeles, and San Diego Counties. Within San Diego County, the arroyo toad occurs along the Santa Margarita, Guejito, Sweetwater, Vallecito, San Luis Rey, Santa Ysabel, Witch, Cottonwood, Temescal, Agua Caliente, Santa Maria, Lusardi, Pine Valley, Noble, Kitchen, Long Potrero, Upper San Diego, San Vicente, and Morena drainages; populations in the Temescal, Agua Caliente, Pine Valley, and Cottonwood drainages may be considered viable (USFWS 1994).

Development and alteration of streamside flats may have been the primary cause of the decline of the arroyo toad population. Additional human disturbances include excessive human camping, manipulation of the hydrologic regime, urban development, placer mining, off-road vehicle use, introduction of exotic predators, and cattle grazing. Natural disturbances, such as fires and droughts, pose a threat as well (Jennings and Hayes 1994).

There is no suitable habitat for the arroyo toad within the Study Area or within 1 kilometer of the Study Area, as they require semi-arid regions near washes, intermittent streams, or rivers with sandy banks and the presence of willows, cottonwoods, and sycamores. Due to the lack of suitable habitat within the Study Area, the arroyo toad is presumed absent from the Study Area.

Coastal California gnatcatcher (*Polioptila californica californica*). Federal Threatened. Known to Occur.

The coastal California gnatcatcher has a limited range within the United States. This subspecies is restricted to coastal southern California and northwestern Baja California, Mexico, from Ventura and San Bernardino Counties, California, south to approximately El Rosario, Mexico (American Ornithologists' Union 1957, Atwood 1991, Garrett and Dunn 1981). The subspecies exists predominantly in southern California's coastal sage scrub habitat, with a strong preference towards areas dominated by California sagebrush

(*Artemisia californica*), chaparral broom (*Baccharis sarothroides*), and flat-top buckwheat (*Eriogonum fasciculatum*). The majority of plant species found in coastal sage scrub habitat are low-growing, drought-deciduous shrubs and sub-shrubs (USFWS 1997).

Densities are highest along sage scrub-grassland borders or in relatively open sage scrub habitat. Nesting occurs in a variety of host shrub species, with a high depredation rate, which results in frequent replacement clutches throughout the breeding season. The coastal California gnatcatcher is non-migratory (Unitt 2004) and generally avoids crossing even small areas of unsuitable habitat (Atwood 1992). Generally, the species is observed on dry coastal slopes, washes, and mesas, in areas with low plant growth of approximately 1 meter in height (NatureServe 2017g). The Study Area contains suitable coastal sage scrub habitat, dominated by California sagebrush (*Artemisia californica*), chaparral broom (*Baccharis sarothroides*), and flat-top buckwheat (*Eriogonum fasciculatum*).

During the October 2017 surveys, WRA biologists detected multiple coastal California gnatcatchers calling within and immediately north of the Study Area, in the coastal sage scrub habitat between Imperial Beach and the water treatment plant and just north of this area. They were also heard just north of the Study Area from the San Ysidro Port of Entry east approximately 1.5 miles. Previous surveys as well as historic records show this species throughout these areas including the revegetated areas on the south slope of smuggler's gulch and on the western slope of Bunker Hill. There is Critical Habitat for the coastal California gnatcatcher in the eastern portion of the Study Area.

Least Bell's vireo (*Vireo bellii pusillus*). Federal Endangered. Presumed absent.

This subspecies of Bell's vireo is a neotropical migrant and summer resident in California and northern Baja California, wintering in southern Baja California (Brown 1993). This vireo was once common in lowland riparian habitats throughout California, but declined precipitously during the twentieth century (USFWS 1998). By the time of federal listing in 1986, an estimated 300 pairs were restricted to southern California, primarily San Diego County (USFWS 1998). The population has increased since, with the number of nesting territories in California in 2006 estimated to be approximately ten times greater than in 1986 (USFWS 2006). However, the distribution of the vireo at that time remained almost entirely within southern California (USFWS 2006).

Least Bell's vireo breeding habitat consists of riparian vegetation, usually in an early successional state between five and 10 years old (USFWS 1998). Such habitat is preferred by least Bell's vireo, because it provides dense cover in the lower shrub layer for nest concealment, as well as a stratified canopy structure favorable to insect abundance, and thus vireo foraging (USFWS 1998). Riparian habitat types used for breeding include those dominated by willows (*Salix* sp.), Fremont's cottonwood (*Populus fremontii*), and/or oaks (*Quercus* sp.), with a dense understory of species, such as willows, mulefat (*Baccharis salicifolia*), California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), and mugwort (*Artemisia douglasiana*) (USFWS 1998). Nests are typically placed within three feet of the ground. Least Bell's vireo may attempt multiple broods during the breeding season from mid-March to late September, although one brood is typical (Brown 1993). Habitats such as chaparral and coastal sage scrub adjacent to riparian areas are used for foraging and even nesting, and thus provide another potentially important habitat component (Kus and Miner 1989). Along with habitat destruction, brood parasitism by the brown-headed cowbird (*Molothrus ater*) is widely considered a major contributor to the decline of least Bell's vireo, and a continuing challenge to its recovery.

The Study Area does not contain suitable nesting or foraging riparian habitat for least Bell's vireo and none have been detected immediately within the Study Area during past surveys. Occupied habitat for this species does exist nearby, most notably within the Tijuana River Valley and approximately 500 feet north of the Study Area within the northern portion of Smuggler's Gulch. The Study Area includes a portion of

least Bell's vireo Critical Habitat along the patrol road adjacent to Camino de la Plaza. Due to the lack of suitable habitat within the Study Area, the least Bell's vireo is unlikely to occur.

Light-footed Ridgway's rail (*Rallus obsoletus levipes*). Federal Endangered. No potential to occur.

The light-footed Ridgway's rail is resident to coastal wetlands in southern California and northern Baja California, Mexico. Habitat loss and degradation are the primary threats to the species. Suitable nesting habitat was identified as a primary, widespread limiting factor. A number of management efforts, including habitat restoration and predator control, have been implemented since 1980. In addition, annual population surveys of the California population have been tracking their success and populations have been climbing. The Tijuana Slough National Wildlife Refuge, located north of the Study Area, supports a number of breeding pairs, which have crashed and rebounded with the overall California population in the last decade. One hundred and thirteen pairs were observed in 2011, which was the second highest count in 32 years. The 2013 annual survey found 105 pairs. Saltwater marshes are traditionally considered primary habitat. The value of freshwater marshes has been recognized recently, as population crashes in saltwater marshes are typically not mirrored in freshwater marshes (Zembal 2013).

Although salt marsh habitat is present in the Study Area, the habitat is unsuitable for this species. The saltwater marshes on-site do not meet the habitat requirements for the species, as there is no cord grass (*Spartina foliosa*) within the Study Area, which is a dominant species habitat requirement for the light-footed Ridgway's rail, for nesting and escape cover. Therefore, the habitat on site and adjacent to the Study Area is unsuitable for the species requirements. Due to the lack of suitable habitat within the Study Area, the light-footed Ridgway's rail is presumed absent from the Study Area.

Pacific pocket mouse (*Perognathus longimembris pacificus*). Federal Endangered. No potential to occur.

The Pacific pocket mouse is the smallest subspecies of the little pocket mouse, which is distributed across arid southwestern North America. It is the only species of its genus to occur on the coast, in lieu of inland deserts and grasslands. However, this habitat preference is largely responsible for the species' extirpation, as habitat loss and fragmentation along the coast has been its largest threat to survival. Four populations are known to persist in southern California, one on the Dana Point Headlands and three on Marine Camp Pendleton. It is widely believed to be extirpated from the rest of the coast, including mesas near the Study Area, where it was last documented in the 1930s. Habitat preference for this species appears to be fine, sandy soils and open coastal scrub and grassland habitats with a diversity of annual herbs. It is thought that denser scrub habitats probably cannot support the Pacific pocket mouse (Spencer 2005).

While suitable habitat occurs within the Study Area for the Pacific pocket mouse, the species has not been observed in the vicinity of the Study Area since 1932 and is believed to be extirpated from the area. Therefore, this species is presumed absent from the Study Area.

Quino checkerspot (*Euphydryas editha quino*). Federal Endangered. High potential to occur.

The Quino checkerspot butterfly is a small butterfly in the brush-footed butterfly family (Nymphalidae). The species is one of at least 18 California subspecies of the more widespread Edith's checkerspot. Adults fly once per year from late February to mid-April (Black and Vaughan 2005). Threats to the Quino checkerspot include agriculture and urban development, type conversion of native habitats, fire management practices, and grazing.

Historically, the Quino checkerspot butterfly was found from the Santa Monica Mountains south into northern Baja California. The Quino checkerspot butterfly is found in areas with open canopies of coastal sage scrub, open chaparral, juniper woodland, and native grasslands. The species habitat contains open areas and low-growing, sparse vegetation, with a low to moderate amount of non-native species (USFWS

2003). Food plants utilized by Quino checkerspot larva is restricted to dot-seed plantain (*Plantago erecta*), woolly plantain (*P. patagonica*), possibly desert Indianwheat (*P. ovata*), purple owl's clover (*Castilleja exserta*), Coulter's snapdragon (*Antirrhinum coulterianum*), bird's beak (*Cordylanthus rigidus*), and Chinese houses (*Collinsia* spp.; USFWS 2003, Mattoni et al. 1997).

There is suitable habitat for the Quino checkerspot butterfly within the Study Area, as there are coastal sage shrublands present within the Study Area. This species has the potential to occur in cleared areas that are adjacent to suitable habitat within the Study Area. There is Critical Habitat for this species in the eastern end of the Study Area. Therefore, the Quino checkerspot butterfly has a moderate to high potential to occur within the Study Area.

Riverside fairy shrimp (*Streptocephalus woottoni*). Federal Endangered. Presumed absent.

Riverside fairy shrimp was described as a species in 1990 (Eng et al. 1990) and was listed as federally endangered on August 3, 1993. Critical Habitat for Riverside fairy shrimp was designated on May 30, 2001 (USFWS 2008a) and revised on December 4, 2012 (77 FR 72069-72140). Riverside fairy shrimp is currently covered under the Vernal Pools of Southern California Recovery Plan, issued on September 3, 1998.

Habitat for the Riverside fairy shrimp include vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats. Riverside fairy shrimp are considered habitat specialists, found in moderate to deep (generally ranging from 10 inches to 5 to 10 feet in depth), longer lived vernal pools, and ephemeral wetlands. Riverside fairy shrimp do not occur in riverine or marine waters or other permanent bodies of water. Restrictive soil layers are typically hardpan or claypan, and bedrock types are volcanic mud or lava flows. Other kinds of depressions that hold water of a similar volume, depth, and area, and for a similar duration and seasonality as vernal pools and ponded areas within swales, may also provide potential habitat for Riverside fairy shrimp. Riverside fairy shrimp habitat is limited to non-vegetated ephemeral and vernal pool systems, which are generally large, and are found within chaparral and coastal sage scrub habitats from 100 to 1,300 feet in elevation.

The most common unifying feature to Riverside fairy shrimp habitat, in general, is an ephemeral wet, flooded, or ponded area that is typically wet during a portion of the year and dry for the remainder of the year. A minimum period of inundation, or pool duration, that Riverside fairy shrimp need in order to hatch and reach sexual maturity is approximately 8 weeks. Soils and soil series that underlie vernal pool habitat that supports Riverside fairy shrimp are generally characterized by a high content of coarse sandy grains (marine alluvial sediments), loams, or clay inclusions, or a combination of these, with a subsurface clay or hardpan layer. These are also limited in number and geographically fixed. As the Riverside fairy shrimp has a slower developmental rate, the species is limited to fairly deep, and moderate in size, pools that support a longer ponding duration.

As reported in the USFWS Arnie's Point Linear Vernal Pool Biological Opinion in February of 2006, both Riverside and San Diego fairy shrimp were previously recorded at the now removed Linear Vernal Pool. Currently, restored vernal pool habitat is north of Study Area at mile marker 7.25 (J15 complex). However, there is currently no suitable habitat for the Riverside fairy shrimp within the Study Area, as they require larger and deeper pools for colonization. Critical Habitat for the species is located in the eastern end and south of the Pacific Gateway Park in the Study Area. Surveys for this species were conducted in March and April 2018 and did not find any species of fairy shrimp. Therefore, the Riverside fairy shrimp is presumed absent from the Study Area.

San Diego fairy shrimp (*Branchinecta sandiegonensis*). Federal Endangered. Presumed absent.

San Diego fairy shrimp was described as a species in 1993 (Fugate 1993). Critical Habitat for San Diego fairy shrimp was designated on December 12, 2007 (USFWS 2008b). The species is currently covered under the Vernal Pools of Southern California Recovery Plan issued on September 3, 1998.

The San Diego fairy shrimp are small aquatic invertebrates, generally restricted to vernal pools and other ephemeral basins within coastal southern California coastal sage scrub and chaparral upland habitat. Claypan and hardpan pools provide suitable pools, which generally fill for a short time in the winter and are dry in the summer (Eriksen and Belk 1999). The San Diego fairy shrimp is a habitat specialist that is found in shallower pools up to 12 inches in depth. Fairy shrimp feed on a variety of algae, diatoms, and particulate organic matter (USFWS 2007a).

San Diego fairy shrimp hatch following rainfall in suitable vernal pool habitat and mature within seven to 14 days. Individuals are usually seen from January to March, although observations of the species may fall outside this range during early or late rainfall events. Cysts of the species are able to withstand prolonged dry periods and often form cyst “banks” in pool soils. These cyst “banks” allow for the recolonization of habitat in subsequent years (USFWS 2008b).

The Study Area falls within the known range of San Diego fairy shrimp, and while there are no vernal pools within the Study Area, there are drainages and ephemeral wetlands which may have ponding long enough for fairy shrimp from nearby pools to have colonized and use. Critical Habitat for the species is located in the eastern end and south of the Pacific Gateway Park in the Study Area. However, surveys for this species were conducted in March and April 2018 and did not find any species of fairy shrimp. Therefore, the San Diego fairy shrimp is presumed absent from the Study Area.

Western snowy plover (*Charadrius alexandrinus nivosus*). Federal Threatened. No potential to occur.

The Pacific coast breeding population of the western snowy plover currently extends from Washington to Baja California, Mexico. Western snowy plovers breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitats include bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Nests typically occur in flat, open areas, with sandy or saline substrates where vegetation and driftwood are usually sparse or absent. Nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g., small pebbles, shell fragments, plant debris, and mud chips). Nesting season extends from early March through late September. Snowy plovers winter mainly in coastal areas from southern Washington to Central America. In winter, snowy plovers are found on many of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats (USFWS 2007b).

Western snowy plover utilizes expanses of dry, flat sand that are above the levels of typical high tides. In addition, they utilize the shores and levees of salt ponds, alkaline lakes, and salt flats in landlocked portions of their range (Bent 1929). Breeding habitat consists of open, bare-ground and islands that are predator free. Western snowy plover have high breeding-site fidelity, but some movement occurs between sites within and between years (Stenzel et al. 1994, Page et al. 1995, Powell et al. 1995). In addition, there is site fidelity associated with wintering areas (Page et al. 1995).

There is no suitable habitat for the western snowy plover within the Study Area, as they require sandy beaches, salt pond levees, and shores of large alkali lakes with sandy, gravelly, or friable soils for nesting, although they do occur within protected coastal areas immediately to the west and north. Due to the lack of suitable habitat within the Study Area, the western snowy plover is presumed absent from the Study Area.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). Federal Threatened. No potential to occur.

The western yellow-billed cuckoo is a subspecies of a behaviorally unique, primarily insectivorous bird. It is known for its shy, retiring behavior, as well as its unusually rapid breeding cycle that sometimes relies on host species to raise their young or on cooperative breeding with three or four adults tending a single nest. Western yellow-billed cuckoos require large, contiguous patches of multilayered riparian habitat for breeding. A canopy of trees including cottonwood, willow, alder (*Alnus* sp.), and other riparian woodland species, combined with a dense, woody understory, provides shade and traps moisture to provide cooler and more humid conditions for breeding. In California, this species is most likely to be found in patches of willow-cottonwood riparian forest greater than 200 acres in size (Halterman et al. 2015). The Western yellow-billed cuckoo nests almost exclusively near water and may be restricted to moist river bottoms because of humidity requirements for breeding (Johnson et al. 2008).

The western population especially has suffered significant range reductions in the twentieth century, primarily due to loss of habitat. Western yellow-billed cuckoos breed in open woodlands and low, but dense, scrubby vegetation, often associated with waterways. Desert riparian woodlands with willows, Fremont cottonwoods, and dense mesquite are the preferred habitat of this species within California. During spring and fall, migration habitats vary and include coastal scrub, second growth, forest edge, and humid lowland forest. The western yellow-billed cuckoo is a summer visitor, occurring in California from about mid-May until early September. Winter ranges tend to occur in woody vegetation bordering fresh water, dense scrub, deciduous broadleaf forest, gallery forest, and secondary forest (Hughes 1999).

The Study Area does not contain suitable riparian habitat for nesting and foraging by the western yellow-billed cuckoo. Therefore, the western yellow-billed cuckoo is presumed absent from the Study Area.

**Table 8.2 Potential for Federal-listed Plant Species to Occur in Study Area**

Common/Scientific Name	Status	Habitat	Observed in Survey	Potential to Occur within Project Site
San Diego thorn mint ( <i>Acanthomintha ilicifolia</i> )	Federal Threatened	Restricted to certain gabbro and calcareous clay soils in gentle, southeast to west facing slopes.	No	Unlikely- The Study Area does not contain gabbroic or calcareous clay soils known to support this species.
San Diego ambrosia ( <i>Ambrosia pumila</i> )	Federal Endangered	Native to California and Baja California, where it is found predominantly along upper terraces of rivers and drainages within chaparral, coastal scrub, valley and foothill grassland habitats, and also in vernal pools.	No	Unlikely- The Study Area does not contain typical habitat to support this species.



Common/Scientific Name	Status	Habitat	Observed in Survey	Potential to Occur within Project Site
Encinitas baccharis <i>Baccharis vanessae</i>	Federal: Threatened	Chaparral (maritime), cismontane woodland/sandstone. Elevation ranges from 200 to 3050 feet (60 to 720 meters). Blooms Aug-Nov.	No	<b>No Potential.</b> The Study Area lacks maritime chaparral associated with this species. There is only one documented occurrence in the vicinity of the Study Area from the south peak of Otay Mountain.
Salt Marsh bird's beak ( <i>Chloropyron maritimum</i> ssp. <i>maritimum</i> )	Federal Threatened	Native to coastal salt marshes in central and southern California and northern Baja California, Mexico.	No	Unlikely- This species is dependent on tidal influx, which is absent within the Study Area.
Otay Tarplant ( <i>Deinandra conjugens</i> )	Federal Threatened	Clay soils in grasslands, open coastal sage scrub, and maritime succulent scrub, underlain by clay soils.	No	High Potential- The Study Area contains suitable habitat including coastal scrub and is within the heart of the range of the species.
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> )	Federal Threatened	Closely related to vernal pool habitats on clay soils with a shallow restrictive layer.	No	Unlikely- The Study Area lacks vernal pool habitat and the associated obligate vernal pool species.
Mexican flannelbush <i>Fremontodendron mexicanum</i>	Federal: Endangered	Closed-cone coniferous forest, chaparral, cismontane woodland/gabbroic, metavolcanic, or serpentine. Elevation ranges from 30 to 2350 feet (10 to 716 meters). Blooms Mar-Jun.	No	<b>No Potential.</b> This perennial shrub species was not observed during the site visits. The Study Area lacks Tecate cypress forest, chaparral, woodland or suitable soils associated with this species.
Spreading navarretia ( <i>Navarretia fossalis</i> )	Federal Threatened	Vernal pool and alkali playa habitat but may also occur in man-made ditches and depressions that have a similar hydrological regime.	No	Unlikely- The Study Area lacks vernal pool habitat and associated obligate vernal pool species to support this species.
California orcutt grass ( <i>Orcuttia californica</i> )	Federal Endangered	Exclusively associated with deep vernal pools underlain by clay soils.	No	Unlikely- The Study Area lacks vernal pool habitat and associated obligate vernal pool species to support this species.
Otay Mesa mint <i>Pogogyne nudiuscula</i>	Federal: Endangered	Vernal pools. Elevation ranges from 300 to 820 feet (90 to 250 meters). Blooms May-Jul.	No	<b>No Potential.</b> The Study Area lacks vernal pools necessary to support this species.

**Table 8.3 Potential for Federal-listed and Special Status Wildlife Species to Occur in Study Area**

Common/Scientific Name	Status	Habitat	Observed in Survey	Potential to Occur within Project Site
<b>Birds</b>				
Coastal California gnatcatcher ( <i>Polioptila californica californica</i> )	Federal Threatened	Southern California's coastal sage scrub habitat, with a strong preference towards areas dominated by California sagebrush, chaparral broom, and flat-top buckwheat.	Yes	Present
Least Bell's vireo ( <i>Vireo bellii pusillus</i> )	Federal Endangered	Breeding habitat consists of riparian vegetation, usually in an early successional state between five and 10 years old. Habitats such as chaparral and coastal sage scrub adjacent to riparian areas are used for foraging and even nesting.	No	Presumed Absent- The Study Area lacks suitable habitat to support this species.
Light-footed Ridgway's rail <i>Rallus longirostris levipes</i>	Federal Endangered	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickle weed are the dominant vegetation. Require dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on molluscs and crustaceans.	No	<b>No Potential.</b> Salt marsh on-site not appropriate for species. Habitat on and adjacent to the site is unsuitable for the species requirements.
Western snowy plover <i>Charadrius alexandrinus nivosus</i> (Nesting)	Federal Threatened,	Federal listing applies only to the Pacific coastal population. Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Requires sandy, gravelly, or friable soils for nesting.	No	<b>No Potential.</b> Habitat on site is unsuitable for the species requirements.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i> (Nesting)	Federal Threatened	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian willow woodlands, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape. In California, breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys.	No	<b>No Potential.</b> Habitat on and adjacent to the site is unsuitable for the species requirements.
<b>Reptiles and Amphibians</b>				
Arroyo toad <i>Anaxyrus (=Bufo) californicus</i>	Federal Endangered	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores;	No	<b>No potential</b> to occur. Habitat on and adjacent to the site is unsuitable for the species requirements.

Common/Scientific Name	Status	Habitat	Observed in Survey	Potential to Occur within Project Site
		loose, gravelly areas of streams in drier parts of range.		
Green sea turtle <i>Chelonia mydas</i>	Federal Threatened	Shallow coastal waters, inshore bays, lagoons, and shoals with eelgrass beds. Young turtles are found in open ocean.	No	<b>No Potential.</b> Habitat on-site is unsuitable for the species requirements.
<b>Mammals</b>				
Pacific pocket mouse <i>Perognathus longimembris pacificus</i>	Federal Endangered	Inhabits the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County. Prefers shrublands with firm sandy soil, fine-grain sandy substrates in the immediate vicinity of the ocean, and coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.	No	<b>No Potential.</b> Habitat on and adjacent to the site is unsuitable for the species requirements.
<b>Invertebrates</b>				
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	Federal Endangered	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants <i>Plantago erecta</i> , <i>P. insularis</i> , and <i>Orthocarpus purpurascens</i> .	No	High potential to occur. Coastal sage shrublands occur on-site.
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>	Federal Endangered	Restricted to vernal pools and other ephemeral basins in coastal southern California.	No	Presumed absent. This species was not detected during fairy shrimp surveys in March and April 2018.
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	Federal Endangered	Endemic to western Riverside, Orange and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	No	Presumed absent. This species was not detected during fairy shrimp surveys in March and April 2018.

### *Critical Habitat*

Critical Habitat has been designated for five species in or near the Study Area. The least Bell's vireo, a Federal-listed endangered species, breeds near the Study Area in the Tijuana River Valley. This species is covered under the MSCP. Critical Habitat for this species crosses into the Study Area within the Northern Levee Segment, parallel to Camino De La Plaza, although suitable habitat for the species was not identified within that portion of the Study Area. San Diego fairy shrimp and Riverside fairy shrimp Critical Habitat is located in the Pacific Gateway Park and the eastern end of the Study Area near the Otay County Open Space Preserve. The eastern end of the Study Area also intersects with Critical Habitat for coastal California gnatcatcher and the Quino checkerspot butterfly.

## **8.2 ENVIRONMENTAL CONSEQUENCES**

### **8.2.1 Plants and Vegetation Communities**

The Project will have minimal impacts on native vegetation communities. Construction of the fence, will cause temporary construction impacts to approximately 12.34 acres, and approximately 4.77 acres of permanent impacts to upland vegetation communities (Table 8-4) within the Roosevelt Reservation. Permanent impacts describe the character of the 21-foot wide area that will be occupied by the new bollard-style wall and the adjacent all-weather road. Temporary construction impact areas are also within the Roosevelt Reservation and are areas used by equipment along the fence, platforms for cranes, staging areas, and other access routes from existing roads to the work areas. Approximately 75.12 acres of permanent and temporary impacts will take place on previously disturbed or developed areas, primarily existing dirt or all-weather roads (Table 8-4). The Project could result in long-term degradation as a result of soil erosion on the extreme slopes in the Project corridor. Following construction, restoration of disturbed areas will take place using native plants and will assist in the minimization of erosion. Any topsoil removed from the work areas will be stockpiled and stored on-site for revegetation activities.

In order to minimize soil disturbance and erosion, general BMPs will be implemented. Additionally, the anticipated reduction in illegal border traffic will have a cumulative beneficial impact on vegetation communities in the region.

**Table 8.4 Potential Impacts to Land Cover Types in the Study Area**

Type	Total in Study Area	Impacts Totals	
		Permanent	Temporary
		Habitat Impact Acres (≤ 21' from fence)	Habitat Impact Acres (21' to 60' from fence)
<b>Vegetation Community</b>			
California brittlebrush scrub	3.41	0.61	1.14
California buckwheat scrub	11.57	0.18	2.49
California sagebrush - California buckwheat scrub	3.01	0.36	0.66
California sagebrush scrub	7.65	0.82	1.86
Laurel sumac scrub	0.38	0.05	
Menzies' goldenbush scrub	1.56	0.06	0.23
Joboba scrub	0.67	0.05	0.11
Revegetated Coastal Sage Scrub (Tax Funded)	40.78	2.65	5.85
<b><i>Vegetation Communities Subtotal</i></b>	<b><i>69.03</i></b>	<b><i>4.77</i></b>	<b><i>12.34</i></b>
<b>Wetlands and Waters</b>			
Perennial Stream	0.71	0.33	0.37
Ephemeral Stream	1.88	0.11	0.44
Detention Basin Wetland	3.23	0.21	2.16
Emergent Marsh	2.99	0.83	1.10
Seasonal Wetland Depression	0.53	0.11	0.35
Wetland Ditch	0.25		0.25
<b><i>Wetlands and Waters Subtotal</i></b>	<b><i>9.59</i></b>	<b><i>1.59</i></b>	<b><i>4.67</i></b>
<b>Existing Developed Areas</b>			
Developed	81.75	4.92	5.72
Disturbed	44.64	7.78	9.81
Non-native Grassland	93.89	14.24	22.92
<b><i>Existing Developed Areas Subtotal</i></b>	<b><i>220.28</i></b>	<b><i>26.94</i></b>	<b><i>38.46</i></b>
<b>Totals</b>	<b><i>298.90</i></b>	<b><i>33.30</i></b>	<b><i>55.46</i></b>

### 8.2.2 Wildlife

The majority of wildlife likely to be found within the Study Area are common and widespread throughout the region. Mobile wildlife such as birds and larger mammals will likely move away from the construction area toward nearby areas of similar habitat, while smaller, slow, or sedentary species such as reptiles, amphibians, and smaller mammals could potentially be lost during construction. Therefore, direct negative impacts to wildlife within the Study Area may occur. However, because construction will be temporary and much of the habitat will be restored, this project is unlikely to result in any long-term or significant decreases in wildlife populations in the region. Migratory birds could be impacted through direct loss of habitat, including foraging, roosting, nesting, and escape cover. Adverse impacts to nesting birds found

within the Project footprint could be mitigated by avoidance or relocation by a qualified biologist. BMPs will be implemented to minimize potential impacts on migratory birds.

Construction-related noise could have short-term impacts on wildlife species within the Study Area. Anthropogenic noise has been found to increase physiological stress, compromise predator/prey detection, affect mating signals and territorial defense, decrease foraging efficiency, and alter temporal or movement patterns in wildlife, although the intensity of behavioral responses due to noise varies among species as well as individuals within a species (Francis and Barber 2013). Because construction activities will mostly be limited to daylight hours and the most active periods for most wildlife are between dusk and dawn, the Project noise-related impacts are expected to be minimal.

The use of portable construction lighting has the potential to affect wildlife. Light pollution can cause orientation and disorientation to wildlife by extending diurnal and crepuscular behaviors into the night. Some species may benefit from this, as it increases foraging potential for predators but decreases benefits for prey (Longcore and Rich 2004). Conversely, animals that forage at night may be negatively influenced due to the shortened nighttime hours or may move away from the area altogether. Reproduction in certain species may also be affected; frogs, for example, have been documented to stop mating activity in the presence of nighttime light. Much of the Study Area is already illuminated at night by permanent lighting for border enforcement activities, so it is unlikely that the addition of temporary construction lighting will have a significant impact on wildlife activities.

### **8.2.3 Aquatic Resources**

Potential impacts to aquatic resources will be limited to approximately 1.59 acres of permanent impacts and 4.67 acres of temporary impacts. Impacts may include installation of drainage structures to channel storm flows and runoff both within the Study Area and from Tijuana, as well as areas used during construction of the fence and all-weather road, such as access routes and staging areas. The types of wetlands and waters and amounts of impacts are listed in Table 8.4b. A stormwater management plan will be developed for each portion of the project and general BMPs will be employed to construction-related runoff from entering wetlands and waters. Should mitigation be necessary, mitigation for impacts to wetlands and waters will follow regional mitigation standards according to guidance provided by the water agencies. As noted in previous sections, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

### **8.2.4 Federal-listed Species and Critical Habitat**

One Federal-listed species, the coastal California gnatcatcher, is known to occur within the Study Area. Three other species have the potential to occur in or near the Study Area: least Bell's vireo, San Diego fairy shrimp, and Quino checkerspot butterfly. An additional six species of Federal-listed wildlife and ten species of Federal-listed plants are found in the region of the Project but have no potential to occur due to the lack of suitable habitat, soils, or other factors.

The coastal California gnatcatcher occurs primarily within the native and restored coastal sage scrub habitats in the Study Area from Bunker Hill to east of Smuggler's Gulch, has been observed outside of the Study Area north of the secondary border fence east of the San Ysidro POE and may occur at the far eastern end of the Study Area. It is expected that 12.34 acres of habitat utilized by the gnatcatcher will be

temporarily impacted by the Project, either as access roads or staging areas, and 4.77 acres will be permanently impacted as part of the fence infrastructure or the adjacent patrol road. However, these impacts will be minimized through implementation of appropriate BMPs for the protection of this species as well as for general plants, wildlife, and habitats. Temporarily impacted areas will be revegetated with native plants or seeds and are expected to function again as suitable gnatcatcher habitat after restoration is complete. Should mitigation be necessary, mitigation for impacts to gnatcatcher and other endangered species habitats will be consistent with the MSCP mitigation guidelines. As noted in previous sections, the scope and extent of any mitigation will be based on a final assessment of impacts and available funding.

Because the overall purpose of this Project is to reduce the amount of illegal cross-border traffic within the Study Area, native habitats within the Study Area are expected to benefit from reduced disturbance. However, changes in illegal cross-border traffic patterns and intensities result from a variety of known and unknown reasons; therefore, these are considered unpredictable and beyond the scope of this ESP.





**SECTION 9.0**

**CULTURAL RESOURCES**

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## SECTION 9.0 CULTURAL RESOURCES

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### 9.1 AFFECTED ENVIRONMENT

A cultural resources survey was conducted in support of the Project. The survey included a records search of all the resources within one quarter mile of the Study Area on the U.S. side, as well as a pedestrian survey performed through the entirety of the 60-foot-wide Roosevelt Reservation. The results of each were utilized to determine the potential for the Project to affect cultural resources. The cultural survey and associated results are documented within a formal Cultural Resources Report provided as Appendix E of this ESP. A summary of the report is provided below.

#### *Cultural Setting*

##### Cultural History

Archaeological evidence reveals that San Diego County has a long cultural history beginning approximately 10,000 years ago. The main periods of San Diego's prehistory include the Archaic and Late Periods. The Archaic Period is comprised of three poorly defined complexes: the San Dieguito, the La Jolla, and the Pauma. The San Dieguito people were a hunting and gathering society that occupied San Diego County as far back as 8200 B.C. Interpretations of the San Dieguito Complex are varied and they have been described both as big game hunters and generalized foragers, while some scientists counter that the San Dieguito instead consisted of highly mobile groups that exploited a wide range of plant, animal, and lithic resources. The San Dieguito Complex is used to refer to the Archaic populations in southwestern California, California's Colorado Desert, northern Baja California, and northern Sonora Mexico (covering all land areas associated with the Project). The Late Period (circa A.D. 500 to contact) is marked by more intensive and efficient exploitation of the available resources, which led to the advent of smaller projectile points, pottery, and the establishment of seasonal villages. Additionally, acorn milling sites in the uplands, obsidian from the Imperial Valley and Obsidian Butte, and interment by cremation are all hallmarks of this period. The Late period is comprised of two complexes; the Kumeyaay (formerly Diegueño) and the Luiseño. Habitation sites from both are scattered throughout San Diego County.

##### Historical Background

The history of San Diego County is commonly presented in terms of Spanish, Mexican, and American political domination. Certain themes are common to all periods, such as the development of transportation, settlement, and agriculture. The Spanish period (1769-1821), not only represents the exploration and the establishment of the San Diego Presidio, but also missions at San Diego (1769, founded by Franciscan friars under Father Junipero Serra) and San Luis Rey (1798), as well as *asistencias* (chapels) to the San Diego Mission at Santa Ysabel (1818) and to the San Luis Rey Mission at Pala (1816). Horses, cattle, agricultural foods and weed seeds, and new architectural styles and method of building construction were also introduced. Spanish influence continued after 1821 when California became a part of Mexico. For a period of time under Mexican rule the missions continued to operate as in the past, and laws governing the distribution of land were retained.

In 1821, Mexico won its independence from Spain and San Diego became part of the Mexican state of Alta California, and thus began the Mexican Period. The fort on Presidio Hill was abandoned, while the town of San Diego grew up on the level land below Presidio Hill. The Mexican Period includes the initial retention of Spanish laws and practices until shortly before secularization of the missions in 1834, a decade after the end of Spanish rule. The Mexican Period ended in 1848 as a result of the Mexican-American War. The American Period (1848-Present) began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. The influx of people to California and the San Diego region resulted from several factors including the discovery of gold in the state, the conclusion of the Civil War, the availability of free land through passage of the Homestead Act, and later, the importance of San Diego County as an agricultural area supported by roads, irrigation systems, and connecting railways. The growth and decline of towns occurred in response to an increased population and the economic boom and bust.

Cultural resource experts conducted a records search and literature review covering a one quarter mile buffer (on the U.S. side of the border) for the San Diego Border Fence Replacement Study Area. Generally, a one-mile radius is the standard; however, due to the immense number of archaeological projects that have occurred in the area and the number of cultural and historical sites that have been located, it was determined to limit the records search to within one quarter mile north of the United States/Mexico International Border. Electronic records on file in the California Historical Resources Information System (CHRIS) at the California Office of Historic Preservation were checked, resulting in a total of 144 projects and 73 cultural resources within one quarter mile of the current Area of Potential Effect (APE). In addition to the records of previous cultural resource projects, GLO plat maps on file with the Bureau of Land Management (BLM) were also checked for information about historic resources that may have been in the Study Area.

Standard professional field methods were used for conducting the pedestrian survey of the San Diego Border Fence Replacement Study Area. The survey occurred between the 9<sup>th</sup> and 13<sup>th</sup> of October 2017, with a supplemental survey conducted on the 5<sup>th</sup> of December 2017. A total of 15 cultural sites had been previously recorded within the San Diego Border Fence Replacement APE (Table 9-1). As part of this project, Northland attempted to locate and reassess all 15 of these sites. Of the previously recorded sites, only P-37-016666 and P-37-025680 had some visible elements that could be relocated. The remaining 13 sites have all been impacted by a combination of factors, including the construction and maintenance of the border infrastructure and by archaeological excavation and mitigation strategies. At another site, P-37-004281, marine shell was noted in the area, but there were no obvious concentrations to indicate the presence of features on the surface. This site was previously subject to a 100% surface collection, archaeological testing, and data recovery to mitigate impacts from border infrastructure development. The previously conducted effort would not normally warrant any additional consideration for the proposed undertaking. However, human remains were found in this location during this effort and are currently being repatriated to the Kumeyaay Cultural Repatriation Committee (KCRC). The remaining sites have been destroyed or previously disturbed.

**Table 9.1 List of Cultural Resources within the Study Area**

Primary Site Number	Site Type	NRHP Eligibility	Current Status
P-37-004281	La Jolla habitation site with extensive marine shell and lithic artifact scatter	Eligible	Data Recovery, not relocated
P-37-008079	Lithic scatter	Not eligible	Not relocated
P-37-008604	Quarry site with lithics	Not eligible	Not relocated
P-37-008652	Lithic scatter and Border Monument 252	Not eligible	Lithic scatter not relocated, monuments are south of the border fence
P-37-008773	Originally recorded as lithic scatter and ruins of adobe structure	Not eligible	Destroyed by construction, not relocated
P-37-010621	Lithic scatter	Not eligible	Collected, not relocated
P-37-011947	Originally recorded as standing walls of a structure and associated features	Not eligible	Destroyed, not relocated
P-37-012256	Resource extraction and processing/temporary habitation site with lithics	Not eligible	Tested, destroyed, not relocated
P-37-012257	Lithic scatter	Not eligible	Tested, destroyed, not relocated
P-37-012258	Lithic scatter	Not eligible	Not relocated
P-37-012259	Lithic scatter	Not eligible	Tested, destroyed, not relocated
P-37-012720	Lithic scatter (6 flakes)	Not recorded	Not relocated
P-37-013486	Shell midden and lithic scatter	Unknown	Tested, not relocated
P-37-016666	Sparse lithic scatter	Potentially eligible	Relocated within Study Area
P-37-025680	Union Pacific Railroad, 1907-1919, El Centro to San Diego	Not eligible	Relocated within Study Area

### *Viewshed Analysis*

As a result of the proposed undertaking, the height of the existing primary border fence will be more than doubled and may be increased to up to three times the existing height. Due to the increased height and in an effort to consider all potential impacts, Northland conducted a viewshed analysis for all NRHP-listed historical structures within one half mile north of the primary border fence. Two NRHP-listed historical structures were located within the one-half mile San Diego Border Fence Replacement visual APE: the Initial Point of Boundary Between U.S. and Mexico/Border Monument 258 and the U.S. Inspection Station/U.S. Custom House are both within the visual APE.

The Initial Point of Boundary Between U.S. and Mexico/Border Monument 258 is listed in the NRHP under Criterion A for its association with the establishment of the United States/Mexico International Border. The monument itself is a twenty-foot-tall marble obelisk that was first erected in 1851 and was then reconstructed in 1894. Both modern development in Tijuana and the border infrastructure have permanently altered the viewshed of this property. The Customs House was built in 1931 and is listed under Criterion A for its association with the establishment of the United States/Mexico International Border and under Criterion C for its Mission/Spanish Revival style of architecture. Modern development in both Tijuana and at the San Ysidro POE have permanently altered the viewshed of this property; development includes multiple light poles, towers, high rise structures, as well as the current construction of the new POE.

## **9.2 ENVIRONMENTAL CONSEQUENCES**

Although the Secretary's waiver means that CBP does not have any specific obligations under the National Historic Preservation Act (NHPA), DHS and CBP recognize the importance of responsible environmental stewardship. CBP has therefore applied the general standards and guidelines associated with the NHPA as the basis for evaluating potential environmental impacts and appropriate BMP's.

The two previously recorded sites with visible components, P-37-016666 and P-37-025680, were relocated within other sections of the Study Area. This relocation avoided all impacts to P-37-025680 and minimized impacts to P-37-016666. However, there is still potential for site P-37-016666 to sustain impacts to the subsurface artifacts present at the original location. As the subsurface artifacts were not visible, they could not be easily relocated. Therefore, it is recommended that site P-37-016666 be avoided if feasible. If avoidance is not possible, it is recommended that P-37-016666 be subject to archaeological testing or monitoring should occur within the site during construction activities to mitigate any potential impacts from the proposed undertaking. Furthermore, due to the presence of human remains at site P-37-004281, a cultural and Native American monitor will be present during any ground disturbing activity at the site. No additional work or monitoring of the remaining 12 sites is recommended due to their previously destroyed or disturbed status.

In addition, two historical properties that are listed in the National Register of Historic Places (NRHP) are located within a one-half-mile diameter of the Study Area that may be subject to indirect effects. The Initial Point of Boundary Between U.S. and Mexico/Border Monument 258 and the U.S. Inspection Station/U.S. Custom House are both within the visual APE. However, both properties are in built environments that

have permanently altered the viewsheds of these properties. Therefore, no adverse visual effects are anticipated to occur to these properties as a result of the proposed Project.

With the implementation of the proposed monitoring and potential archaeological testing, in conjunction with the BMP's listed in Section 1.5.6 of this ESP, the Project will not have a direct or indirect adverse impact on known cultural resources.





**SECTION 10.0**

**SOCIOECONOMICS**

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**SECTION 10.0            SOCIOECONOMICS**


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**10.1    AFFECTED ENVIRONMENT**

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. While population and demographic data are relatively straightforward and maintained by the Census Bureau, there are many factors that can be used as indicators of economic conditions for a geographic area, such as employment and unemployment rates, employment by business sector, and median household income. The proposed Project is located within San Diego County, which is one of 58 counties within the state of California. Several resources that determine population and economic activity within this region refer to San Diego County as the San Diego-Carlsbad Metropolitan Statistical Area.

*Population/Demographics*

In 2015, the population of San Diego County was 3,229,521, second most populous in the state of California, and 17<sup>th</sup> in the Country<sup>1</sup>. San Diego County's population is predominantly Caucasian (46.0%) and Hispanic or Latino (33.5%) races, followed by Asian (12.2%), and African American (5.5%). The remainder is split among American Indian, Pacific Islander, and people claiming to be two or more races<sup>2</sup>.

In 2016, the labor force in San Diego County averaged 1,570,422<sup>3</sup>. The largest number of people employed in San Diego County at this time worked in government and government services; trade, transportation, and utilities; professional and business services; educational and health services; and leisure and hospitality services<sup>4</sup>. In 2016, the annual unemployment rate was 4.7%<sup>5</sup>.

In 2015, San Diego County had a per capita personal income (PCPI) of \$53, 298. This PCPI ranked 18<sup>th</sup> in the state and was 99% of the state average (\$53,741) and 111% of the national average (\$48,112). The 2015 PCPI reflected an increase of 4.2% of the 2014 PCPI. The 2014-2015 state change was 5.4% and the national change was 3.7%. San Diego County had a personal income of \$175,858,666 in 2015, which ranked 3<sup>rd</sup> in the state and accounted for 8.4% of the state total. The median household income for San Diego County was \$64,309, which is higher than the median household income of the state (\$61,818). In 2016, San Diego County had an average of 13.9% of persons in poverty<sup>6</sup>.

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<sup>1</sup> Bureau of Economic Analysis. 2016. Available at:

<https://www.bea.gov/regional/bearfacts/action.cfm?geotype=4&fips=06073&areatype=06073>

<sup>2</sup> Unites States Census Bureau. 2016. Race and Hispanic Origin San Diego, County. Available at: <https://www.census.gov/quickfacts/fact/table/sandiegocountycalifornia/AGE275210>

<sup>3</sup> Bureau of Labor Statistics. 2017. Local Area Unemployment Statistics. Available at: <https://data.bls.gov/pdq/SurveyOutputServlet>

<sup>4</sup> State of California Employment Development Department. 2017. San Diego-Carlsbad Metropolitan Statistical Area. Available at: [http://www.labormarketinfo.edd.ca.gov/file/lfmonth/sand\\$pd\\$pd.pdf](http://www.labormarketinfo.edd.ca.gov/file/lfmonth/sand$pd$pd.pdf).

<sup>5</sup> Bureau of Labor Statistics. 2017. Local Area Unemployment Statistics. Available at: <https://data.bls.gov/pdq/SurveyOutputServlet>

<sup>6</sup> United States Census Bureau. 2016. QuickFacts San Diego County, California. Available at: <https://www.census.gov/quickfacts/fact/table/sandiegocountycalifornia,CA/PST045216>

### *Economic Activity*

The proposed Project defines the border between the U.S. and Mexico where there are longstanding economic ties, especially between the cities of San Diego and Tijuana. The economies have become increasingly interconnected and the region is a hub for manufacturing of medical equipment and supplies. Tijuana's population is approximately 1.6 million people, and approximately 135,000 people legally cross the border each day<sup>7</sup>. The value of commercial exchange between the broader Baja California states and the San Diego region is valued at \$2.1 million daily. As of 2013, the San Diego-Tijuana area had more than 2.1 million jobs, with over 1,470,000 jobs in San Diego, 60,600 jobs in the Imperial Valley, and 637,981 jobs in Tijuana<sup>8</sup>.

### *Environmental Justice*

On February 11, 1994, EO 12898, *Federal Actions to address Environmental Minority Populations and Low-Income Populations*, was issued. It addresses environmental justice issues as they relate to various socioeconomic groups and the health effects that could be imposed on them. This EO requires Federal agencies' actions substantially affecting human health or the environment not to exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws. Consideration of environmental justice concerns include race, ethnicity, and the poverty of populations in the vicinity of a proposed action.

### *Protection of Children*

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, states that each Federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

## **10.2 ENVIRONMENTAL CONSEQUENCES**

As noted throughout, CBP recognizes the importance of environmental stewardship. Thus, CBP has used the standards and guidelines associated with environmental laws and regulations, such as EO 12898 and EO 13045, to evaluate potential socioeconomic Project impacts and recommend appropriate BMPs.

### *Population/Demographics and Economic Activity*

The Project is not anticipated to have permanent impacts, direct or indirect, on long-term population or employment. Legal traffic across the border will continue at the two largest POEs. The Project is anticipated to hire local construction crews and contractors for the duration of construction, reducing the need for new employees or relocation of employees. No potential employees would be required to relocate

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<sup>7</sup> San Diego Regional Profile. 2017. Tijuana Regional Profile. Available at: [https://usmex.ucsd.edu/\\_files/frontera-friday/tijuana-regional-profile-2017.pdf](https://usmex.ucsd.edu/_files/frontera-friday/tijuana-regional-profile-2017.pdf).

<sup>8</sup> *ibid*

to San Diego County, thus population and demographics of the County would remain the same as pre-construction conditions. The nature of the work associated with the construction phase would be temporary and therefore would not result in additional long-term employment. Additionally, it is anticipated that a portion of the required supplies would be bought from the businesses in the vicinity of the Study Area. Although the Project would result in a short-term beneficial impact to the economy through the provision of temporary jobs and purchasing materials from local businesses, any increase in economic activity would not be sustained to permanently alter the economic status of the residents and/or businesses in the immediate vicinity.

San Diego County will benefit from the proposed Fence Replacement Project in the long term, however, as the replacement of the primary fence and installation of complimentary security facilities will provide additional protection from illegal traffic across the border.

#### *Environmental Justice and Protection of Children*

The proposed Project would have short-term indirect and adverse effects, as well as long-term indirect and beneficial impacts on low-income and minority populations and the protection of children in the areas along the United States/Mexico international border. Property owners and/or residents in the vicinity of the Study Area may temporarily be impacted by the visual intrusion, noise, and disruptions during construction. However, the construction phase would be temporary. Furthermore, implementation of the proposed Project would allow CBP agents to better perform their mission. As a result, the Project would indirectly help to deter cross-border violators in the immediate area, which in turn could improve public safety and viable socioeconomic conditions by preventing smugglers, terrorists, and weapons from crossing the border.



**SECTION 11.0**

**HAZARDOUS MATERIALS AND WASTE**

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## SECTION 11. HAZARDOUS MATERIALS AND WASTE

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### 11.1 AFFECTED ENVIRONMENT

Hazardous materials or wastes have a chemical composition or other properties that make them toxic or otherwise capable of causing illness, death, or some other harmful effect on humans or the environment when mismanaged or released. Solid and hazardous wastes are regulated in California by a combination of mandated laws promulgated by the Federal, state, and regional Councils of Government. The Resource Conservation and Recovery Act (RCRA), an amendment to the Federal Solid Waste Disposal Act, was established to set up a framework for the proper management of hazardous wastes. It describes the waste management program mandated by congress that gave EPA the authority to develop the RCRA program. This program provides regulations for the generation, transportation, treatment, storage, and disposal of hazardous wastes.

The EPA also maintains a list of hazardous waste sites, particularly waste/storage/treatment facilities or former industrial manufacturing sites in the U.S. The chemical contaminants released into the environment (air, soil, or groundwater) from hazardous waste sites may include heavy metals, organic compounds, solvents, or other chemicals. The potential impact of hazardous waste sites on human health is a considerable source of concern to the general public, as well as to government agencies and health professionals.

A search of the California Department of Toxic Substances Control (DTSC) EnviroStor database revealed that two cleanup sites within a quarter mile of the western extent of the Study Area were identified as needing a military evaluation. The closest one to the border, Bunker Hill, includes old military bunkers, though no specific hazardous materials were identified. A third site in the las Americas Premium Outlet Stores, near the San Ysidro POE, was identified as a Goodwill store in need of an evaluation. One of two sites identified in Otay Mesa about a kilometer (slightly over half a mile) from the border identifies land use restrictions on a property, while the other site in this location states no further action is warranted. These sites are relatively distant and the Study Area is not likely to be affected. Eleven other sites within the vicinity of the Study Area were previously identified as hazardous waste sites and all cases are considered closed and require no further action. There are no sites near the Study Area listed as sites of national priority<sup>1</sup> by the USEPA.

CalEnviroScreen, on the same DTSC website, scores the general environmental conditions in terms of nonpoint source hazardous waste. It described the Tijuana Valley with a relatively high score of 76 to 80%, presumably because of the sewage and litter that flushes down the Tijuana River during flood events. The International Water Treatment Facility, located between the Study Area and the Tijuana River, is designed to manage much of the sewage generated in Tijuana but has limited ability to capture and treat uncontained upstream contamination in the Tijuana River watershed during flood events.

In addition to the laws and regulations mentioned earlier, EO 12088, *Federal Compliance with Pollution Control Standards*, as amended, directs Federal agencies to (1) comply with “applicable pollution control

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<sup>1</sup> California Department of Toxic Substance Control. 2018. Envirostor, accessed 3-23-28. Available at: <http://www.envirostor.dtsc.ca.gov/public/map/?myaddress=US%2FMexico+border>

standards,” in the prevention, control, and abatement of environmental pollution; and (2) consult with the USEPA, state, and local agencies concerning the best techniques and methods available for the prevention, control, and abatement of environmental pollution.

## 11.2 ENVIRONMENTAL CONSEQUENCES

The sites described in DTSC’s EnviroStor database are generally considered inactive, where no further action is required. One exception is on Bunker Hill, the high point of the Western Segment, where old bunkers should be avoided, mostly because of their historic value, but also because of the unconfirmed potential for the presence of hazardous materials. This site is within the Border Patrol management area and the potential for such an occurrence there is very low. On the other hand, the relatively high CalEnviroScreen score in the Tijuana River Valley suggests workers should take precautions to protect themselves from potential exposure, since sewage may have contaminated lowlands in that area. Simple precautions are recommended including a site-specific safety plan. The potential for worker exposure to hazardous materials outside of the lower Tijuana River valley, particularly in the Central and Eastern Segments, is very low on the U.S. side of the border, but there may be undocumented sources of hazardous materials on the Mexican side.

Within the Study Area there are areas that are characterized by steep and heavily sloped topography, areas that are difficult to access, as well as easily accessible, flatter areas. In the steeper areas there is a high risk of erosion and sediment transport.

All Project sites will have to accommodate construction. Construction typically requires use of hazardous materials, such as fuel and other petrochemicals and the Fence Replacement Project is no exception. To minimize the potential for release of hazardous materials into the environment, BMPs will be implemented throughout construction to avoid release and to anticipate capture requirements in advance of any potential release. The Planned Action will incorporate a SWPPP, a SPCCP, and all other BMPs listed in Section 1.5.7. In addition, all construction waste will be properly stored and removed from the site in covered containers as soon as feasible. All waste will be disposed of in compliance with Federal, state, and local regulations. These programs and practices will be put in place in order to minimize or eliminate any potential impacts resulting from the use of hazardous materials, or the containment and transport of construction waste during construction of the proposed Project.

**SECTION 12.0 RELATED PROJECTS AND POTENTIAL EFFECTS**

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**SECTION 12.0 RELATED PROJECTS AND POTENTIAL EFFECTS**

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**12.1 CUMULATIVELY AFFECTED ENVIRONMENT**

This section of the ESP addresses the potential combined impacts associated with the implementation of the Project and other projects/programs that are planned for the region. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative impacts resulting from projects that are planned, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects. The geographic scope of the analysis varies by resource area. For example, the geographic scope of cumulative impacts on resources such as soils and vegetation is very narrow and focused on the location of the resource. The scope of air quality, wildlife and sensitive species, visual resources, and socioeconomics is much broader and considers more county or region-wide activities. Projects that were considered for this analysis were identified by reviewing USBP documents, news releases, and published media reports, as well as through coordination with planning and engineering departments of local governments and state and Federal agencies, although only projects on the U.S. side of the border were possible to evaluate. Projects that do not occur in close proximity (i.e., within several miles) to the Project will not contribute to a cumulative impact (or are not possible to evaluate if they are south of the border) and are generally not evaluated further.

USBP has been conducting law enforcement actions along the border since its inception in 1924 and has continually transformed its methods as new missions, cross-border violator modes of operation, agent needs, and National enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have affected thousands of acres, with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects have resulted from the construction and use of these roads and fences as well, including but not limited to: increased employment and income for border regions and surrounding communities, protection and enhancement of sensitive resources north of the border, reduction in crime within urban areas near the border, increased land value in areas where border security has increased, and increased knowledge of the biological communities and pre-history of the region through numerous biological and cultural resource surveys and studies.

With continued funding and implementation of CBP's environmental conservation measures, including environmental education and training of its agents, use of biological and archaeological monitors, and restoration of wildlife water systems and other habitats, adverse impacts of future and ongoing projects will be prevented or minimized. However, recent, ongoing, and reasonably foreseeable proposed projects will result in cumulative impacts. General descriptions of these types of activities are discussed in the following paragraphs.

*Cumulative Fencing along Southwestern Border.* As of August 2, 2017, CBP has completed 705 miles of pedestrian and vehicle fencing along the southwest border. A total of 354 miles of primary pedestrian fence, 37 miles of secondary pedestrian fence, and 14 miles of tertiary pedestrian fence has been constructed. The final total of vehicle fence constructed was 300 miles<sup>1</sup>.

*Past Actions.* Past actions are those in the relatively recent past that are within the cumulative effects analysis areas of this ESP. The effects of these past actions are generally described throughout the previous sections. For example, the existing pedestrian fence, the two heavily used POEs, the secondary fence, and the previously developed BIS on Bunker Hill have all contributed to the existing environmental conditions of the area.

- Bunker Hill Tactical Infrastructure Project- USBP recently completed the Bunker Hill Tactical Infrastructure Project, which includes the construction, operation, and maintenance of approximately 2,400 feet of all-weather road and lighting to connect exiting roads on the east and west sides of Bunker Hill, in the Western Segment of the Study Area. The Project consisted of the following components: (1) building, operating, and maintaining an all-weather road with permanent lighting; (2) use and maintenance of existing roads to allow access for construction; and (3) establishment of a temporary construction staging area.

*Present Actions.* Present actions include current or funded construction projects, USBP or other agency actions in close proximity to the fence locations, and current resource management programs and land use activities within the cumulative effects analysis area. Ongoing actions considered in the cumulative effects analysis include:

- BIS Maintenance and Repair- Routine all-weather road, secondary fence, and associated lighting and water conveyance system repair and maintenance.
- BIS Revegetation Projects- A variety of revegetation projects have recently been completed as part of previous BIS construction projects and additional work is planned to minimize BIS project-related impacts and to restore habitat along the border.
- Tijuana River Vegetation Control – The USBP manages vegetation in the 168-acre Tijuana River Floodway (TRF) which crosses the international border from Tijuana, Mexico into San Diego, California. Giant reed (*Arundo donax*), a non-native highly invasive grass is delivered to the site by flooding, grows to 10 feet tall, and regenerates on site and downstream. This and other existing native plants obstruct the CBP officers' views, hindering their ability to detect people illegally crossing the border. USBP is proposing modified vegetation control techniques to include use of herbicides to better manage the invasive species. USBP is in the process of finalizing the EA and acquiring permits for the project.

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<sup>1</sup> United States Border Patrol. 2017. Mileage of Pedestrian and Vehicle Fencing by State. Available at: <https://www.cbp.gov/sites/default/files/assets/documents/2017-Sep/Border%20Patrol%20Fence%20Totals.pdf>.

- Tijuana River Valley Wetlands Mitigation Project, Under Construction- This 40-acre mitigation project is underway in an old agricultural field in the Tijuana River Valley, close to and downstream of Dairy Mart Bridge by the San Diego Water Quality Authority.
- San Diego County I-8 and Highway 80 Checkpoints Improvements Project- Located approximately 16 miles away, this project is outside the cumulative impacts analysis area; however, it is included as an example of other USBP activities in the area. USBP is expanding the current footprint at the I-8 and Highway 80 checkpoints and installing improvements including additional lights, wastewater holding tanks, shade canopies, and other minor improvements. The I-8 expansion requires construction of two new exit lanes from I-8 to the inspection area and construction of retaining walls and guard rails at the edge of the expansion area. The Highway 80 checkpoint would involve ground disturbance and vegetation clearing to the easement boundary in order to facilitate parking and the expanded lanes/inspection area.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects. The following projects are reasonably foreseeable actions that are likely to occur in the CBP San Diego Sector area.

- Border Wall- As a part of this or future administrations, DHS/CBP may construct additional border walls in the USBP San Diego Sector. Presumably, the additional wall construction would begin at the eastern terminus of the current primary and secondary barriers.
- USIBWC EA for the Rehabilitation of the TFCP Levee System- Currently the EA is being prepared for a project that would improve the levee on the north side of the Vegetation Control project area, including the following project components:
  - *North Levee Enlargement* – This component would increase the height of the levee upstream of Dairy Mart Road for about 2,250 feet by placing embankment fill on the top and on the landside slope of the existing levee.
  - *North Levee Embankment Protection* – This action would place buried riprap below the riverside toe in a localized area near the 90-degree bend in the levee.
  - *Rodent Burrow Repair and Mitigation* – This would repair damaged levees and prevent additional burrowing of rodents.
  - *Removal of Sediment and Debris* – This would remove sediment and debris from the concrete lined portion of the low flow channel.

USBP might be required to implement other activities and operations that are currently not foreseen or mentioned in this document. These actions could be in response to National emergencies or security events like the terrorist attacks on September 11, 2001, or to changes in the mode of operations of the cross-border violators.

Plans by other agencies that will also affect the region's natural and human environment include various road improvements by California Department of Transportation and/or San Diego County. The majority of these projects will be expected to occur along existing corridors and/or within previously disturbed sites. The magnitude of the impacts will depend upon the length and width of the road right-of-way (ROW) and

the extant conditions within and adjacent to the ROW. However, currently no large San Diego County projects are ongoing or near completion within the vicinity of the Project corridor.

Other organizations, such as Imperial Beach Naval Air Station, Border Field State Park, and the National Oceanic and Atmospheric Administration, routinely prepare or update Resource Management Plans for the resources they manage. A summary of the anticipated cumulative impacts relative to the Project (i.e., construction of the all-weather road and installation of the primary fence) is presented below. These discussions are presented for each of the resources previously described.

## **12.2 ENVIRONMENTAL CONSEQUENCES**

### **12.2.1 Air Quality**

The emissions generated during and after the installation of the primary pedestrian fence and construction of the all-weather road will be short-term and minor. While there will be cumulative adverse construction impacts to air quality from each of the current or foreseeable wall development, maintenance, revegetation, and mitigation projects discussed above, the emissions associated with all these actions will also result in short-term and minor impacts to the airshed, even when combined with the other proposed developments in the border region. CBP will minimize air quality impacts by the use of standard BMPs, such as dust suppression, during construction. Deterrence of and improved response time to illegal border crossings created by the construction of infrastructure will lead to improved control of the border. A result of this improved control will be a reduction in the number of off-road enforcement actions that are currently necessary by USBP agents, thus reducing dust generation and serving to benefit overall air quality as well.

### **12.2.2 Noise**

Most of the noise generated by the Project will occur during construction and thus will not contribute to cumulative impacts of ambient noise levels. Routine maintenance of the primary pedestrian fence and roads will result in slight temporary increases in noise levels that will continue to sporadically occur over the long-term and will be similar to those of ongoing road maintenance within the Project corridor. Potential sources of noise from other projects are not significant enough (temporally or spatially) to increase ambient noise levels above the 65 dBA range at the Project sites. Thus, the noise generated by the construction and maintenance of Project infrastructure, when considered with the other existing and proposed projects in the region, is considered to have minor cumulative adverse effect.

### **12.2.3 Land Use, Recreation, and Aesthetics**

The Project will primarily affect lands located in the Roosevelt Reservation, which was set aside specifically for border control actions. This project is therefore consistent with the authorized land use and, when considered with other potential alterations of land use, would not be expected to have a major cumulative adverse impact. Similarly, open space, parklands, and the resultant recreational opportunities they provide will not be affected by the project and will not be negatively impacted when considered with other present and foreseeable projects in the region.

There will be visually apparent changes within the viewsheds that currently include the primary fence; however, the addition of a new larger fence, while potentially causing an adverse visual effect in some



areas, does not constitute a major impact on visual resources within the Study Area due to the presence of currently existing infrastructure. That said, when considered alongside the other USBP projects, it will degrade the existing visual character of the region, thus cumulative impacts will be considered moderate and CBP will minimize impacts to resources to the maximum extent feasible.

Additionally, areas north of the border within the construction corridors will be expected to experience beneficial, indirect cumulative impacts to aesthetics and recreation through the reduction of trash, soil erosion, and creation of trails by illegal pedestrian traffic.

#### **12.2.4 Geological Resources and Soils**

The Project will not create any dangerous or unstable conditions within any geologic unit, nor will it expose people or structures to potential substantial adverse effects. Further, no geologic resource is located exclusively within the project corridor. The impact of the Project, when combined with past and proposed projects in the region, will be considered to have minor cumulative adverse impacts on geological resources.

The Project, when combined with other USBP projects, will not reduce prime farmland soils or agricultural production. Pre and post-construction SWPPP measures will be implemented to control soil erosion. The permanent impact of approximately 14 miles of pedestrian fence and infrastructure, combined with the other USBP projects, will constitute a minor to moderate cumulative adverse impact.

#### **12.2.5 Hydrology and Water Management**

As a result of the Project, when combined with other USBP projects, increased temporary erosion during construction will occur; however, increased sedimentation and turbidity will have minimal cumulative impacts on water quality. Pre and post-construction SWPPP measures for this and other projects will be implemented to control erosion. Withdrawal from domestic water supplies or regional groundwater basins for dust suppression and other construction/maintenance activities, for this and other related projects in the region, could result in cumulatively considerable impacts. These short-term activities will not affect long-term water supplies or the quantity of groundwater in the region. Although the volume of water withdrawn will not affect the public drinking water supplies, it may indirectly contribute to aquifer contamination from surface runoff. With the implementation of appropriate BMPs, the Project will not substantially alter existing drainage patterns or substantially affect water quality. When combined with past and planned projects in the region, indirect effects of altered surface drainage and potential consequent erosion will have adverse cumulative impacts on surface water quality, but revegetation and restoration projects will serve as a beneficial and mitigating force on the area's water resources through improved erosion control and prevention.

#### **12.2.6 Biological Resources (Vegetation, Wildlife, Aquatic Species, Special Status Species)**

The Project will have minimal impacts on native vegetation communities, but as discussed in the Biological Resources section, some direct negative impacts to wildlife within the Study Area may occur due to loss of habitat, erosion, noise, lighting, or conflict with construction equipment. These adverse impacts will be cumulatively more significant when considered alongside other current and foreseeable projects in the region. However, because construction will be temporary, much of the habitat will be restored, and impacts will be minimized through implementation of appropriate BMPs for the protection of Federal-listed species

as well as for general plants, aquatic resources, wildlife, and habitats, these projects combined are unlikely to result in any long-term or significant decreases in wildlife populations in the region.

### **12.2.7 Cultural Resources**

Construction of the proposed Project has the potential to impact two identified cultural resource sites; however, implementation of monitoring and other avoidance measures, as described in Section 9.0, will result in minimal, if any, adverse impacts. Therefore, this action when combined with other existing and proposed projects in the region will have negligible cumulative impacts on cultural resources.

### **12.2.8 Socioeconomics**

Construction of the Project, when combined with other USBP projects, will result in temporary, minor, and beneficial impacts on the region's economy. No impacts on populations, minorities, or low-income families will occur. When practicable, materials and other Project expenditures will predominantly be obtained through merchants in the local community. Local construction crews will also be employed to complete the proposed Project. Safety buffer zones will be designated around all construction sites to ensure public health and safety. Long-term cumulative effects of the projects on the economy of the region should be beneficial by reducing smuggling and other illegal activity in the area. Legal border crossings and international trade will continue unaffected by the project. When combined with the other projects currently planned or ongoing projects within the region, they will have minor cumulative, temporary beneficial impacts on the region's socioeconomics.

### **12.2.9 Hazardous Materials and Waste**

The use of hazardous substances will be required in small amounts within the Study Area during the construction phase. It is anticipated, with the inclusion of BMPs listed in Section 1.5.7, that impacts resulting from the use of hazardous materials during this phase would be avoided or minimized. Similarly, only minor temporary increases in the use of hazardous materials would potentially be experienced from construction associated with other projects in the region. Removal of the existing fence could generate waste, but most of the existing steel plate material is valuable as a recyclable material. Therefore the Project, when combined with other ongoing and proposed projects in the region, is not expected to have a major cumulative impact on the generation of waste nor the potential for release of hazardous materials.

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**13.0 LIST OF ACRONYMS**


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BMP	Best Management Practices
BSR	Biological Survey Report
Cal-IPC	California Invasive Plant Council
CBP	U.S. Customs and Border Protection
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
ESP	Environmental Stewardship Plan
FAC	Facultative plant species
FACU	Facultative upland plant species
FACW	Facultative wetland plant species
HCP	Habitat Conservation Plan
IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
MSCP	Multiple Species Conservation Plan
NL	Not Listed
NVCS	National Vegetation Classification System
OBL	Obligate plant species
OHWM	Ordinary High Water Mark
POE	Port of Entry
USFWS	U.S. Fish and Wildlife Service
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WRA	WRA, Inc.