

DRAFT
ENVIRONMENTAL ASSESSMENT FOR THE
NAVAL OUTLYING LANDING FIELD IMPERIAL BEACH
PERIMETER FENCE REPLACEMENT PROJECT AT
NAVAL BASE CORONADO, CALIFORNIA

Prepared for:

Department of the Navy
Navy Region Southwest

November 2015

**ENVIRONMENTAL ASSESSMENT FOR THE
NAVAL OUTLYING LANDING FIELD IMPERIAL BEACH
PERIMETER FENCE REPLACEMENT PROJECT
Naval Base Coronado, California**

Lead Agency for the EA: United States Navy

Title of Proposed Action: Naval Outlying Landing Field Imperial Beach Perimeter Fence Replacement

Affected Jurisdictions: San Diego County

Designation: Environmental Assessment

ABSTRACT

The Department of the Navy prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 United States Code §§ 4321–4370h, as implemented by the Council on Environmental Quality Regulations, 40 Code of Federal Regulations (C.F.R.) Parts 1500–1508; guidelines contained in the Department of the Navy Regulations (32 C.F.R. § 775); and the Office of Chief Naval Operations Instruction 5090.1D, which establishes procedures for implementing NEPA. This EA evaluates the environmental impacts associated with the Naval Outlying Landing Field (NOLF) Imperial Beach (IB) Perimeter Fence Replacement Project (hereinafter “Proposed Action”). The Proposed Action would remove and replace the existing perimeter fence around the active airfield portion of NOLF IB and implement erosion protection in a manner that maintains or expands functional operational areas and enhances security, while limiting environmental effects. The purpose of the Proposed Action is to replace the entire existing perimeter fence to support NOLF IB Command missions in compliance with the Department of Defense Unified Facilities Criteria as prescribed by MIL-STD 3007 and compliance with Anti-terrorism/Force Protection requirements. The Proposed Action is needed because the perimeter fence has been damaged and undermined in several locations as a result of elevated water flow from the Tijuana River during storm events, waterborne debris dams, and general bank erosion. The alternatives to be analyzed in this EA include the Perimeter Fenceline Maintenance Alternative, the Improved Fence Alignment and Structural Improvements Alternative, and the No Action Alternative. This EA evaluates the potential environmental impacts to the following resource areas: topography, geology and soils; water quality and hydrology; biological resources; cultural resources; air quality and climate change; noise; and public health and safety.

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ACRONYMS AND ABBREVIATIONS

APCD	Air Pollution Control District	ERP	Environmental Restoration Program
APE	area of potential effects		
AT/FP	Anti-terrorism/Force Protection	GHG	greenhouse gas
BA	Biological Assessment	GIS	geographic information system
BMP	best management practice	HU	Hydrologic Unit
BO	Biological Opinion	I-5	Interstate 5
BTEX	benzene, toluene, ethylbenzene, and total xylenes	IB	Imperial Beach
		INRMP	Integrated Natural Resources Management Plan
CAA	Clean Air Act		
CAAQS	California Ambient Air Quality Standards	IP	Individual Permit
Caltrans	California Department of Transportation	IPCC	Intergovernmental Panel on Climate Change
CARB	California Air Resources Board	IR	Installation Restoration
CEQ	Council on Environmental Quality	IRP	Installation Restoration Program
		JP-5	Jet Propellant 5
CERCLA	Comprehensive Environmental Response Compensation and Liability Act	JWDR	Jurisdictional Wetland Delineation Report
		L _{eq}	equivalent noise level
C.F.R.	Code of Federal Regulations	LF	linear feet
CM	conservation measure	MOA	Memorandum of Agreement
CO	carbon monoxide	MOU	Memorandum of Understanding
CO ₂	carbon dioxide	MRP	Munitions Response Program
CO _{2e}	carbon dioxide equivalent	MTBE	methyl tertiary-butyl ether
CWA	Clean Water Act	NA	Not Applicable
CY	cubic yard(s)	N ₂ O	nitrous oxide
dB	decibel	NAAQS	National Ambient Air Quality Standards
diesel PM	diesel particulate matter		
DoD	Department of Defense	NASNI	Naval Air Station North Island
DODINST	DoD Instruction	NAVD	North American Vertical Datum of 1988
DoN	Department of the Navy	NAVFAC SW	Naval Facilities Engineering Command Southwest
EA	Environmental Assessment		
EIS	Environmental Impact Statement	NBC	Naval Base Coronado
		NEPA	National Environmental Policy Act
EO	Executive Order		
ESA	Endangered Species Act	NEX	Navy Exchange
FONSI	Finding of No Significant Impact	NHPA	National Historic Preservation Act

No.	number	RONA	Record of Non-Applicability
NO ₂	nitrogen dioxide	RWQCB	Regional Water Quality Control Board
NOLF	Naval Outlying Landing Field		
NO _x	nitrogen oxide	SDAB	San Diego Air Basin
NPDES	National Pollutant Discharge Elimination System	SECNAVINST	Secretary of the Navy Instruction
NRHP	National Register of Historic Places	SHPO	State Historic Preservation Officer
NRO	Natural Resource Office	SIP	State Implementation Plan
O ₃	ozone	SSTC-South	Silver Strand Training Complex-South
OPNAVINST	Office of Chief Naval Operations Instruction	SO _x	sulfur oxide
OSHA	Occupational Safety and Health Administration	SWRCB	State Water Resources Control Board
PA	Programmatic Agreement	TAC	toxic air contaminant
PL	Public Law	TPH	total petroleum hydrocarbon
PM	particulate matter	TRNERR	Tijuana River National Estuarine Research Reserve
PM ₁₀	particulate matter equal to or less than 10 microns in size	TSNWR	Tijuana Slough National Wildlife Refuge
PM _{2.5}	particulate matter equal to or less than 2.5 microns in size	UFC	Unified Facilities Criteria
ppm	parts per million	USACE	U.S. Army Corps of Engineers
RAQS	Regional Air Quality Strategy	U.S.C.	United States Code
RCRA	Resource Conservation and Recovery Act	USEPA	U.S. Environmental Protection Agency
ROD	Record of Decision	USFWS	U.S. Fish and Wildlife Service
ROG	reactive organic gas	UST	underground storage tank
ROI	Region of Influence	VOC	volatile organic compound

EXECUTIVE SUMMARY

The Department of the Navy prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 United States Code §§ 4321–4370h, as implemented by the Council on Environmental Quality Regulations, 40 Code of Federal Regulations (C.F.R.) Parts 1500–1508; guidelines contained in the Department of the Navy Regulations (32 C.F.R. § 775); and the Office of Chief Naval Operations Instruction 5090.1D, which establishes procedures for implementing NEPA.

The purpose of the Proposed Action is to replace the existing perimeter fence around the active airfield portion of Naval Outlying Landing Field Imperial Beach (NOLF IB) to support NOLF IB Command missions in compliance with the Department of Defense (DoD) Unified Facilities Criteria as prescribed by MIL-STD 3007 and in compliance with anti-terrorism/force protection (AT/FP) requirements. DoD regulations require fencing to be provided for certain protected/restricted areas. In addition to replacement of the perimeter fence, the Proposed Action includes ongoing maintenance of both the perimeter fence and a clear zone corridor (hereafter “maintenance corridor” to distinguish it from aviation-specific clear zone requirements) that includes a 20-foot-wide area on the outside of the fence and a 30-foot-wide area on the inside of the fence where vegetation would be managed for safety and security in compliance with AT/FP requirements. The area encompassed by the perimeter fence around the active airfield portion of NOLF IB is substantially smaller than the area encompassed by the NOLF IB installation boundary. Security fences are primarily used to define the perimeter of protected areas.

The Proposed Action is needed because the perimeter fence has been damaged and undermined in several locations as a result of elevated water flow from the Tijuana River during storm events, waterborne debris dams, and general bank erosion. The replacement of the perimeter fence is needed to safeguard personnel, prevent or delay unauthorized access to the airfield, and expand secured operational areas. In addition to typical safety and security concerns in preventing unauthorized access that are common to all DoD installations, NOLF IB is located near the international border with Mexico in an area that has historically experienced foot traffic from illegal border crossings. A part of the need for perimeter fence improvements is to help ensure that these individuals do not inadvertently cause unsafe conditions for themselves and others by entering an active airfield. Due to its damaged condition and incomplete extent of protection, the existing perimeter fence is no longer functional.

Outside of the southern portion of the existing perimeter fence, just north of the Tijuana River, there is a section of an older, outer perimeter chain link fence (herein referred to as the old outer fence) that is no longer actively maintained, having been compromised by flood waters. This portion of the old outer fence is located along the southern boundary of the airfield and occurs below the elevation of the NOLF IB perimeter road, is overgrown with vegetation, and is not easily visible to security. The old outer fence has been abandoned in place and, as it has been replaced by the existing perimeter fence, no further action

will be taken to address it. The entirety of the existing perimeter fence would be replaced and maintained as part of the Proposed Action.

An additional need for the Proposed Action is to provide slope protection and erosion control improvements. While the condition of the perimeter fence is of paramount importance to maintaining installation security, a potentially greater risk exists to the basic infrastructure of the facility due to potential catastrophic erosion of the airfield in the event of a major flood. Currently, NOLF IB has one active runway (Runway 27) (approximately 5,000 feet long) and five square 100-foot by 100-foot helipads. NOLF IB is the only exclusive-use naval helicopter airfield on the West Coast and serves as a practice field for Pacific Fleet helicopters, utilized by 11 squadrons of combat and patrol helicopters (GlobalSecurity.org 2011).

The southeastern corner of Runway 27 is of particularly high risk for multiple reasons. First, the present flow direction of the Tijuana River channel is nearly perpendicular to the bank at this location. Second, there is existing evidence at this location of eroded banks from prior river bend migration to the north. Third, the airfield is constructed on an un-engineered fill of soil and rubble that performs unpredictably with respect to erosion. Finally, there is little to no room for infrastructure retreat at this location in the event of catastrophic flooding. In the event of a major flood (at or near a 100-year event), it is likely that a significant portion of the Tijuana River bank could be lost in the vicinity of the eastern end of Runway 27. It is also reasonable to expect that damage would be sustained to the perimeter road and potentially to the corner of Runway 27.

The alternatives to be analyzed in this EA include the Perimeter Fenceline Maintenance Alternative, the Improved Fence Alignment and Structural Improvements Alternative, and the No Action Alternative. This EA evaluates the potential temporary, permanent, direct, indirect, and cumulative impacts to the following resource areas: topography, geology, and soils, water quality and hydrology, biological resources, cultural resources, air quality and climate change, noise, and public health and safety.

A summary of environmental consequences with implementation of the two alternatives or the No Action Alternative is presented in Table ES-1. With the incorporation of conservation measures discussed in this EA, implementation of the Proposed Action would not result in significant impacts to topography, geology and soils, water quality and hydrology, biological resources, cultural resources, air quality and climate change, noise, and public health and safety.

**Table ES-1
Summary of Effects**

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
3.1 Topography, Geology, and Soils	<p><u>Impacts:</u> Changes in topography would be relatively minor involving construction site leveling. NOLF IB possesses highly erodible soils. Strong seismically induced ground motion and associated ground shaking could occur. Adverse effects attributable to liquefaction and settlement are considered minor. Alternative 1 development would mostly occur outside the tsunami inundation area. No significant risk of seiches and landslides would occur. No significant geology and soils impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. • Prepare and comply with geotechnical studies that would be conducted for the fenceline construction site during project design. • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP. 	<p><u>Impacts:</u> The topography, geology, and soils impacts would be the same as Alternative 1.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. • Prepare and comply with geotechnical studies that would be conducted for the fenceline and revetment construction sites during project design. • Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid soil impacts. • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP. 	<p><u>Impacts:</u> No effects on topography, geology, and soils. Existing erosion issues would not be addressed.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>
3.2 Water Quality and Hydrology	<p><u>Impacts:</u> Construction- and operation-related impacts to receiving waters would be minimized/avoided with implementation of BMPs. No significant impacts to floodplains would occur. No significant hydrology or water quality impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. • Implement sediment and erosion control measures during and after 	<p><u>Impacts:</u> Temporary construction-related impacts would be greater than Alternative 1. Realignment of fenceline and bank stabilization would avoid floodplain impacts. No significant hydrology or water quality impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. 	<p><u>Impacts:</u> No effects on hydrology and water quality.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff.	<ul style="list-style-type: none"> • Implement sediment and erosion control measures during and after construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff. • Realign fenceline out of floodplain. • Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid impacts to the floodplain. 	
3.3 Biological Resources	<p><u>Impacts:</u> There would be a permanent direct impact to 0.03 acre of suitable habitat for Least Bell's Vireo.</p> <p>Temporary direct impacts to San Diego fairy shrimp-occupied basins, Least Bell's Vireo, and Light-footed Ridgway's Rail may include construction-related noise and dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal, and increased predation by perch availability on construction equipment and materials storage.</p> <p>Permanent indirect impacts to flora and faunal resources may include the introduction of invasive plant species into newly disturbed areas that spread into adjacent undisturbed areas and predation by predators perching on the new fence.</p> <p>Temporary direct impacts to waters of the U.S. may include construction-related dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal.</p> <p>Permanent indirect impacts to waters of the U.S. may include the introduction of invasive plant species into areas newly disturbed by fence replacement activities that spread into adjacent undisturbed areas (that may be downstream of the fence replacement location).</p> <p><u>Mitigation Measures:</u> Unavoidable impacts to waters of the U.S. would require compensatory mitigation for both temporary and permanent impacts, as well as a USACE CWA Section 404 Permit for placement of dredged or fill material within waters</p>	<p><u>Impacts:</u> The biological resources impacts would be the same as Alternative 1.</p> <p><u>Mitigation Measures:</u> Measures for unavoidable impacts to waters of the U.S. would be the same as for Alternative 1.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Impact avoidance and minimization measures would be the same as for Alternative 1.</p>	<p><u>Impacts:</u> No impacts to biological resources.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>of the U.S. and a RWQCB CWA Section 401 state water quality certification for an action that may result in degradation of waters of the state.</p> <p><u>Impact Avoidance and Minimization Measures:</u> A total of 21 special conservation and construction measures for biological resources listed at the end of Section 3.3.3.2 (and in Appendix B, Sections 2.4 and 2.5) would be incorporated as part of the Proposed Action and would avoid and/or minimize many potential direct and indirect impacts to sensitive biological resources. These include general conservation measures (conservation measure [CM] 1 through CM-11) as well as species-specific conservation measures for San Diego fairy shrimp (CM-12 through CM-15), Light-footed Ridgway's Rail (CM-16 through CM-20), and Least Bell's Vireo (CM-21).</p>		
3.4 Cultural Resources	<p><u>Impacts:</u> Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>	<p><u>Impacts:</u> Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>	<p><u>Impacts:</u> No effects on cultural resources.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>
3.5 Air Quality and Climate Change	<p><u>Impacts:</u> Under Alternative 1, annual emissions of nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 1 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}) for Alternative 1 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be significant under NEPA.</p> <p><u>Mitigation Measures:</u> None.</p>	<p><u>Impacts:</u> Under Alternative 2, annual emissions of the nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 2 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}) for Alternative 2 from 2015 through 2024 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be</p>	<p><u>Impacts:</u> No new construction or operational pollutant emissions sources would be generated; therefore, local and regional air quality would not be affected.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets. • Incorporate abatement measures if asbestos-containing building materials or lead-based paint is determined present during demolition. 	<p>significant under NEPA.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets. • Incorporate abatement measures if asbestos-containing building materials or lead-based paint is determined to be present during demolition. 	
3.6 Noise	<p><u>Impacts:</u> Under Alternative 1, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> <u>Noise Complaint Reporting</u> – A telephone hot-line would be established by the construction contractor for use by the public to report any significant adverse noise conditions associated with the construction of the Proposed Action. This hot-line telephone number would be posted at the project site during construction in a manner visible to passersby.</p>	<p><u>Impacts:</u> Under Alternative 2, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Use same measures as for Alternative 1.</p>	<p><u>Impacts:</u> No new construction or operational noise would be generated; therefore, noise would not be affected.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p><u>Noise Complaint Investigation</u> – Throughout the construction of the Proposed Action, complaints would be submitted to the Base and resolution would be coordinated with the contractor via NAVFAC’s Facilities Engineering and Acquisition Division. The contractor would take all reasonable measures to reduce the noise at its source.</p> <p><u>Construction Practices</u> – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing construction noise levels at nearby noise-sensitive receivers:</p> <ul style="list-style-type: none"> • Minimize noise-intrusive impacts during most noise-sensitive hours (e.g., 10:00 p.m. to 7:00 a.m.). • Plan noisier operations during times of highest ambient noise levels. • Keep noise levels relatively uniform; avoid excessive and impulse noises. • To the extent practical and unless safety provisions require otherwise, all audible back-up alarms should be adjusted downward in sound level, reflecting locations that have expected lower background level, while still maintaining adequate signal-to-noise ratio for alarm effectiveness. Signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, would also be options for reducing reliance on high-amplitude sonic alarms. • Stationary noise sources, such as generators and air compressors, would be placed away from affected noise-sensitive receivers to the farthest extent practical. <p><u>Equipment Noise Reduction</u> – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise:</p> <ul style="list-style-type: none"> • Minimize the use of impact devices, such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal. • Pneumatic impact tools and equipment used at the construction site would have intake and exhaust mufflers recommended by the manufacturers 		

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	thereof, to meet relevant noise limitations. <ul style="list-style-type: none"> • Provide impact noise-producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise. • Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces). • Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines. 		
3.7 Public Health and Safety	<p><u>Impacts:</u> Construction activities would be typical and would occur within the footprint of NOLF IB, and would include all standard construction safety procedures. Construction activities would not result in a significant public health and safety impact.</p> <p>Operation and maintenance activities would pose no substantial risk to public health and safety.</p> <p>Terrorist activity, although unlikely, would not be considered a significant impact on public health and safety.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Compliance with the NBC Installation Emergency Management Plan and its relevant supporting plans. • Where construction would occur in the footprint of a Defense Environmental Restoration Program (ERP) site, or within the area of recent discovery of low level radiological objects, the construction would be coordinated with the ERP Remedial Project Manager to determine if any worker health and safety measures need to be taken. • Manage and dispose of disturbed soil or debris in the event that residual contamination is encountered in accordance with Navy guidance (OPNAVINST 5090.1D and 5100.23), and applicable state and federal regulations. • A plan or guidance for the contractor should be in place in the event that 	<p><u>Impacts:</u> Same as Alternative 1.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Same as for Alternative 1.</p>	<p><u>Impacts:</u> No significant public health and safety impacts.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	unforeseen materials are discovered during construction. This would include communication and follow-on action protocol. <ul style="list-style-type: none">• Compliance with all standard construction safety procedures and applicable subparts of the Occupational Safety and Health Administration standards would occur.		

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CHAPTER 1.0

PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental impacts associated with the Naval Outlying Landing Field (NOLF) Imperial Beach (IB) Perimeter Fence Replacement Project (hereinafter “Proposed Action”). The Proposed Action would remove and replace the existing perimeter fence around the active airfield portion of NOLF IB and implement erosion protection in a manner that maintains or expands functional operational areas and enhances security, while limiting environmental effects. The purpose of the Proposed Action is to replace the entire existing perimeter fence to support NOLF IB Command missions in compliance with the Department of Defense (DoD) Unified Facilities Criteria (UFC) as prescribed by MIL-STD 3007 and compliance with Anti-terrorism/Force Protection (AT/FP) requirements.

The Department of the Navy prepared this EA in accordance with the National Environmental Policy Act of 1969 (NEPA), 42 United States Code (U.S.C.) §§ 4321–4370h, as implemented by the Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (C.F.R.) Parts 1500–1508; guidelines contained in the Department of the Navy Regulations (32 C.F.R. § 775); and the Office of Chief Naval Operations Instruction (OPNAVINST) 5090.1D, which establishes procedures for implementing NEPA.

1.2 BACKGROUND

NOLF IB is part of Naval Base Coronado (NBC) located in San Diego County, California. The primary function of NOLF IB is to provide an active airfield for mission operations and, principally, helicopter training exercises. The airfield and associated facilities occur within a secured location on the installation surrounded by a perimeter fence. Through a Memorandum of Understanding, approximately 600 acres of NOLF IB located outside of the perimeter fenceline is co-managed by the Navy and the U.S. Fish and Wildlife Service (USFWS) as part of the Tijuana Slough National Wildlife Refuge (TSNWR) and the Tijuana River National Estuarine Research Reserve (TRNERR).

Originally established in 1917 as a U.S. Army aviation facility, the Navy began using the field for practice carrier landings in the 1920s, but did not acquire the airfield until World War II. Shortly after the war, the field was decommissioned. It was recommissioned in the 1950s as a Naval Auxiliary Landing Field before being redesignated later in the decade as a Naval Auxiliary Air Station. In the 1960s, it became a full Naval Air Station, serving all West Coast helicopter squadrons and units. In the 1970s, it was redesignated as a Naval Auxiliary Landing Field before assuming its current status later in the decade as a Naval Outlying Landing Field (GlobalSecurity.org 2011).

1.3 PROPOSED ACTION LOCATION

NOLF IB is approximately 14 miles south of downtown San Diego in the City of Imperial Beach, California (Figure 1-1). The property is located within Sections 31 and 32 of Township 18 South, Range 2 West of the U.S. Geological Survey 7.5' Imperial Beach Quadrangle, San Bernardino Base & Meridian. NOLF IB encompasses approximately 1,175 acres and is bordered by the Tijuana River Estuary to the south, the Pacific Ocean to the west, and the City of Imperial Beach to the north and east (Figure 1-2).

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to replace the existing perimeter fence around the active airfield portion of NOLF IB to support NOLF IB Command missions in compliance with the DoD UFC as prescribed by MIL-STD 3007 and in compliance with AT/FP requirements. DoD regulations require fencing to be provided for certain protected/restricted areas. In addition to replacement of the perimeter fence, the Proposed Action includes ongoing maintenance of both the perimeter fence and a clear zone corridor (hereafter “maintenance corridor” to distinguish it from aviation-specific clear zone requirements) that includes a 20-foot-wide area on the outside of the fence and a 30-foot-wide area on the inside of the fence where vegetation would be managed for safety and security in compliance with AT/FP requirements. As shown in Figure 1-2, the area encompassed by the perimeter fence around the active airfield portion of NOLF IB is substantially smaller than the area encompassed by the NOLF IB installation boundary.

Security fences are primarily used to define the perimeter of protected areas. The Proposed Action is needed because the perimeter fence has been damaged and undermined in several locations as a result of elevated water flow from the Tijuana River during storm events, waterborne debris dams, and general bank erosion. The replacement of the perimeter fence is needed to safeguard personnel, prevent or delay unauthorized access to the airfield, and expand secured operational areas. In addition to typical safety and security concerns in preventing unauthorized access that are common to all DoD installations, NOLF IB is located near the international border with Mexico in an area that has historically experienced foot traffic from illegal border crossings. A part of the need for perimeter fence improvements is to help ensure that these individuals do not inadvertently cause unsafe conditions for themselves and others by entering an active airfield. Due to its damaged condition and incomplete extent of protection, the existing perimeter fence is no longer functional.

Outside of the southern portion of the existing perimeter fence, just north of the Tijuana River, there is a section of an older, outer perimeter chain link fence (herein referred to as the old outer fence) that is no longer actively maintained (Figure 1-3), having been compromised by flood waters. This portion of the old outer fence is located along the southern boundary of the airfield and occurs below the elevation of the NOLF IB perimeter road, is overgrown with vegetation, and is not easily visible to security. The old outer fence has been abandoned in place and, as it has been replaced by the existing perimeter fence, no further action will be taken to address it.

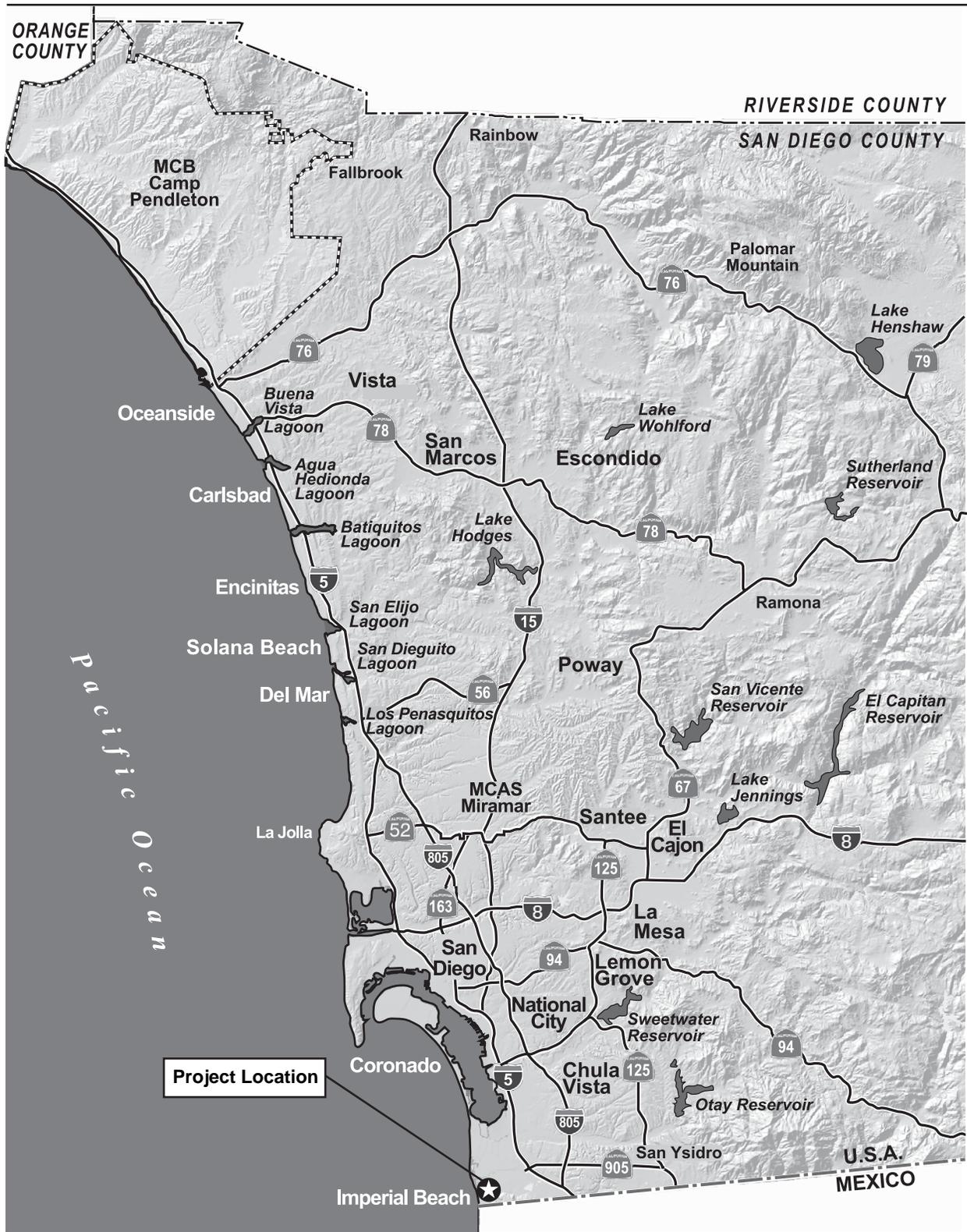


Figure 1-1
Regional Map

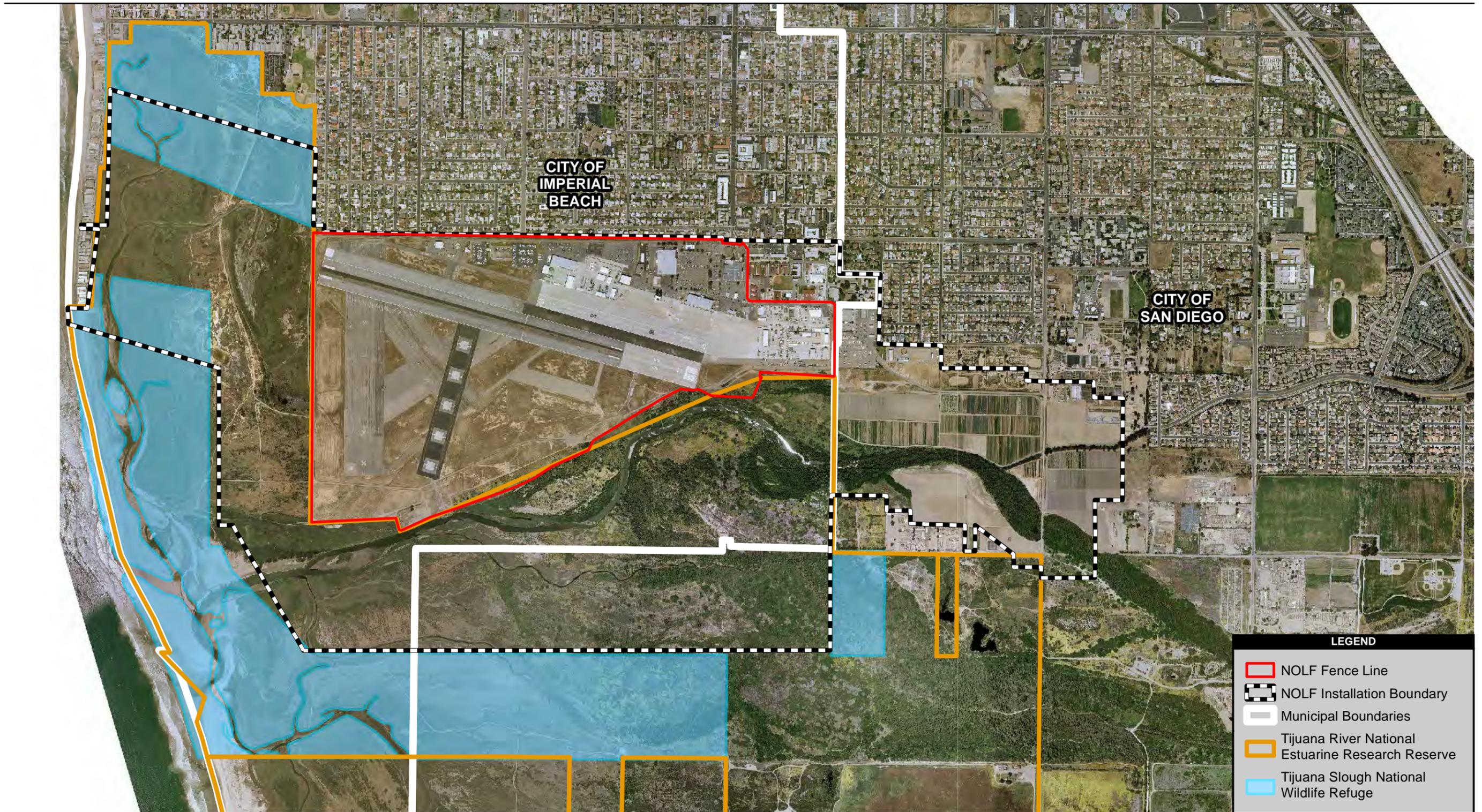
Portions of the existing perimeter fence currently in place along the western and also the southern boundaries of the airfield were previously installed as a temporary solution as a result of the old outer fence no longer being functional. The perimeter fence in these sections is newer and is placed outside of the Tijuana Estuary, at the top of the slope that defines the active airfield. The existing perimeter fence in this area is approximately 8 feet high and topped with barbed wire, and provides the primary security barrier along the western and southern boundaries of the NOLF IB airfield. The existing perimeter fence roughly follows the 100-year floodplain boundary. While the overall alignment of the existing perimeter fence is fairly intact, the fence condition varies significantly along the alignment. Segments of the existing perimeter fence have been installed or replaced at various times, utilizing differing fence fabrics and posts. Fencing fabrics vary from relatively intact galvanized security and institution-grade chain link, to recent patches over deteriorated chain link, to deteriorated chain link fabric.

An additional need for the Proposed Action is to provide slope protection and erosion control improvements. While the condition of the perimeter fence is of paramount importance to maintaining installation security, a potentially greater risk exists to the basic infrastructure of the facility due to potential catastrophic erosion of the airfield in the event of a major flood. Currently, NOLF IB has one active runway (Runway 27) (approximately 5,000 feet long) and five square 100-foot by 100-foot helipads. NOLF IB is the only exclusive-use naval helicopter airfield on the West Coast and serves as a practice field for Pacific Fleet helicopters, utilized by 11 squadrons of combat and patrol helicopters (GlobalSecurity.org 2011).

The southeastern corner of Runway 27 is of particularly high risk for multiple reasons. First, the present flow direction of the Tijuana River channel is nearly perpendicular to the bank at this location. Second, there is existing evidence at this location of eroded banks from prior river bend migration to the north. Third, the airfield is constructed on an un-engineered fill of soil and rubble that performs unpredictably with respect to erosion. Finally, there is little to no room for infrastructure retreat at this location in the event of catastrophic flooding. In the event of a major flood (at or near a 100-year event), it is likely that a significant portion of the Tijuana River bank could be lost in the vicinity of the eastern end of Runway 27. It is also reasonable to expect that damage would be sustained to the perimeter road and potentially to the corner of Runway 27.

1.5 DECISION TO BE MADE

The decision to be made as a result of the analysis in this EA is whether an Environmental Impact Statement (EIS) needs to be prepared. An EIS would need to be prepared if it is determined that the Proposed Action would have significant impacts on the human or natural environment. Should an EIS be deemed unnecessary, the Proposed Action from this EA would be selected for implementation and would be documented in a Finding of No Significant Impact (FONSI).



**Figure 1-2
Vicinity Map**

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Figure 1-3
Existing Perimeter Fenceline

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1.6 SCOPE OF ANALYSIS

This EA evaluates temporary, permanent, direct, indirect, and cumulative impacts that may occur as a result of implementation of the Proposed Action alternatives. In compliance with NEPA, CEQ regulations, and Navy procedures for implementing NEPA, the description of the affected environment focuses only on those resources potentially subject to impacts. In addition, the level of analysis is commensurate with the anticipated level of impact. Conversely, several resource areas were not carried forward for detailed analysis in this EA because potential impacts were determined to be nonexistent or negligible.

1.6.1 Primary Resource Areas Analyzed in this EA

The range of issues analyzed in this EA was determined from initial Navy evaluation of the Proposed Action, informed by the previously completed *Conceptual Fenceline Replacement 100% Design* (Merkel & Associates 2014), included as Appendix A. Environmental impacts that could occur as a result of implementation of the Proposed Action and alternatives are evaluated with respect to the following human and environmental resources: topography, geology, and soils (Section 3.1); water quality and hydrology (Section 3.2); biological resources (Section 3.3); cultural resources (Section 3.4); air quality and climate change (Section 3.5), noise (Section 3.6); and public health and safety (Section 3.7).

1.6.2 Resource Areas Considered but Eliminated from Further Analysis

Resource areas considered but eliminated from further analysis include land use and recreation; hazardous materials and waste; coastal zone resources and coastal uses; transportation/traffic; socioeconomics and environmental justice; aesthetics/visual resources; and utilities and public services. These resources are briefly summarized below and are then not addressed further in this EA.

- ***Land Use and Recreation.*** The Proposed Action would not change any land uses, including recreational land uses. An existing perimeter fence would be either repaired in place or replaced in the same location with a functionally identical fence, with few exceptions. Where exceptions would occur, minor alignment changes would be made to more closely parallel flood water flows to help address existing and future erosion issues, and would not substantially increase or decrease area within the perimeter fence. Proposed structural improvements would also address existing and future erosion issues, but similarly not change the use of the areas where they would be placed.
- ***Hazardous Materials and Waste/Protection of Children.*** The Proposed Action would not utilize hazardous materials or generate hazardous waste. Proposed Action ground-disturbing activities would not occur in areas known to contain hazardous substances, with the potential exception of three active Installation Restoration Program (IRP) sites and one Munitions Response Program (MRP) site that are discussed and analyzed in the Public Health and Safety section. These sites are, however, undergoing cleanup under a separate action as discussed in the Public Health and

Safety section, and the Proposed Action would avoid these sites until that process is complete. No impacts resulting from hazardous materials and/or hazardous waste considerations would occur. Additionally, no child-oriented facilities are located within the Proposed Action area. The Proposed Action would not increase environmental health risks or safety risks to children.

- ***Coastal Zone Resources and Coastal Uses.*** The Proposed Action would not have any direct or indirect influence on the coastal zone resources. The Proposed Action area is not a part of the coastal zone as lands managed solely, or held in trust, by the federal government are excluded from the coastal zone (16 U.S.C. 1453). The Proposed Action project components would essentially replace and/or repair an existing perimeter fence in its current location, except where limited modifications would be made to address existing perimeter fence-related erosion and flood damage issues and/or to avoid or minimize disturbance of hazardous waste sites that are being remediated. Any potential construction runoff would be confined to Navy property through the use of standard construction best management practices (BMPs), preventing runoff from reaching the ocean or other portions of the coastal zone. Further, the Proposed Action would not change coastal access or any existing coastal uses. Therefore, no impacts to coastal zone resources would occur.
- ***Transportation/Traffic.*** The Proposed Action would not increase or decrease traffic off-installation, except for a negligible increase of construction-related traffic during project construction. Heavy load construction equipment hauling materials for structural improvements would occur on an interior roadway from the installation gate to the revetment construction area on the south side of the airfield. This would result in a degree of pavement degradation and would require roadway repaving ahead of the regular maintenance schedule, but no impediments to circulation (or changes to circulation patterns) on- or off-installation would occur.
- ***Socioeconomics and Environmental Justice.*** Consistent with other similar projects on NBC, it is assumed that design and construction work associated with the Proposed Action would be undertaken by civilian contracting firms that largely draw their employees from the southern California regional labor pool. No increase in population or housing demand would occur. Construction-related increases in employment and economic output would be beneficial but minor within the regional socioeconomic context. There would be no disproportionately high and adverse environmental or health impacts on low-income populations or minority populations.
- ***Aesthetics/Visual Resources.*** Except for the temporary presence of construction equipment during fence repair or replacement along the northern edge of the project area, the Proposed Action would not change any views from publicly accessible areas. The proposed repaired or new perimeter fence would be virtually indistinguishable from the existing perimeter fence from any publicly accessible view point. Proposed structural improvements would be underground or at ground level. All temporary disturbance areas would be revegetated to the extent feasible given AT/FP requirements for clear areas on either side of the fenceline. No changes to visual character would occur as a result of the Proposed Action.

- **Utilities and Public Services.** The Proposed Action would not have any impacts on utilities during construction or post-construction phases. No changes are proposed to the existing outfalls in the area of the proposed erosion control revetment structures near Runway 27. The Proposed Action would not increase, decrease, or otherwise change demand for public services, such as police, fire, and schools, with the potential exception of maintaining airfield security becoming more labor efficient for law enforcement personnel.

1.7 INTERGOVERNMENTAL COORDINATION

This EA discusses reasonable alternatives for meeting the purpose and need for the Proposed Action; existing environmental conditions in the vicinity of the Proposed Action; direct, indirect, and cumulative impacts that might result from the Proposed Action; and measures to avoid or minimize potential adverse impacts. Important considerations for identification and analysis of alternatives were the avoidance or minimization of environmental impacts.

NEPA requires consideration of potential impacts to the environment in the decision-making process for federal actions. CEQ regulations implement the “action forcing” provisions of NEPA to ensure that federal agencies comply with the letter and spirit of NEPA. The Proposed Action may require the following permits, certifications, and/or determinations:

- Endangered Species Act (ESA) revised Biological Opinion (BO) from USFWS.
- Completion of consultation with State Historic Preservation Officer (SHPO) and Native American tribes under Section 106 of the National Historic Preservation Act (NHPA). If adverse effects are identified, a Memorandum of Agreement (MOA) between consulting parties would be executed.
- Clean Air Act (CAA) general conformity determination and amended Record of Non-Applicability (RONA).
- CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE).
- CWA Section 401 Water Quality Certification from the San Diego Regional Water Quality Control Board (RWQCB).
- National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities from the State Water Resources Control Board (SWRCB).

1.8 PUBLIC/AGENCY PARTICIPATION

NEPA requirements help ensure that environmental information is made available to the public during the decision-making process and before actions are taken. The premise of NEPA is that the quality of federal decisions will be enhanced if federal proponents of an action provide information to state and local

governments and the public and involve them in the planning process. The public involvement process augments the Navy's opportunity to cooperate with and consider state and local views in implementing a federal proposal.

A Notice of Availability was published in the San Diego Union-Tribune newspaper on November 20 and 21, 2015, indicating that a draft EA had been prepared and was available for review through December 4, 2015 online at www.cnid.navy.mil/NBC_NOLF_Fenceline_Replacement_EA and at the San Diego County Library in Imperial Beach, California. Public comments will be considered in the preparation of a Final EA. Once the EA is finalized and provided to the Navy chain of command, a decision will be made to prepare a FONSI for the Proposed Action or to prepare an EIS. If the Proposed Action includes items that may have a significant environmental impact, additional NEPA documentation in the form of an EIS would be prepared prior to implementing the Proposed Action. An additional Notice of Availability will be published after the decision document is signed.

CHAPTER 2.0

ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter includes the alternatives development process (Section 2.1), a description of the Proposed Action alternatives (Section 2.2), alternatives considered but not carried forward for detailed analysis (Section 2.3), and a summary comparison of the potential environmental impacts, mitigation measures, and impact avoidance and minimization measures for each of the alternatives (Section 2.4).

2.1 ALTERNATIVES DEVELOPMENT PROCESS

Alternatives that would be carried forward in this EA for detailed environmental evaluation are those that would meet the following screening factors:

- Maintain the integrity of the perimeter fence;
- Provide safety/security of the site;
- Provide for vegetation clearing both inside and outside of the fence in accordance with AT/FP standards;
- Address existing erosion and damage issues, both for fencing and runway embankments; and
- Minimize adverse impacts to sensitive resources.

Alternatives presented are based largely on those developed during the 100% Design process (see Appendix A).

2.2 ALTERNATIVES

The following describes the range of alternatives explored in this analysis and provides a rationale for each alternative. This includes the Perimeter Fenceline Maintenance Alternative, Improved Fence Alignment and Structural Improvements Alternative, and the No Action Alternative.

2.2.1 Alternative 1: Perimeter Fenceline Maintenance

This alternative involves maintenance and repair of the existing, newer chain link perimeter security fence along its current alignment. Activities associated with this alternative would include a combination of (1) replacement of entire sections of fenceline, (2) replacement of fence posts, (3) addition of vertical lengths of fenceline in areas where the fence is undermined, (4) patching holes, (5) replacement of barbed wire, (6) replacement and/or installation of signage, (7) replacement and/or maintenance of locks and gates, (8) maintenance and/or installation of lighting and other security measures, and (9) brush management both inside and outside of the fenceline.

The goal of this alternative would be to minimize capital costs of fenceline repair and replacement, to avoid environmental and hydrology impacts, and to maintain the existing acreage of the secured operational area (inside of the NOLF IB fenceline). However, this alternative does not address immediate or future erosion concerns. As such, the long-term maintenance costs for this alternative would be greater in areas at risk from high water flows, waterborne debris, and erosion, as fencing work under this alternative does not incorporate new elements, such as grading, or bank protection. This alternative is considered a maintenance/repair alternative with no change in environmental conditions from the baseline. Under this alternative, the fenceline alignment outside of the former small arms firing range would remain in place and no structural improvements designed to address erosion undercutting of the fenceline and embankment at the end of Runway 27 would be made. Given that repair, replacement, and/or maintenance activities could occur anywhere along the fenceline, as could vegetation maintenance activities, for the purposes of conservative environmental review, it is assumed that ground disturbance would occur along the entire existing fenceline as a part of Alternative 1.

Where needed, the fenceline would be repaired or replaced according to UFC Security Engineering standards for Type A fencing (DoD 2007). The Type A fence is a galvanized or coated 9-gauge chain link fence with 2-inch square mesh, 7 feet in height, and surmounted by an outrigger top guard with three strands of barbed wire angled outward for a total height of 8 feet. If required, new fence posts would be placed in line with, and adjacent to, existing fence posts. Cement slurry would be used to cement the fence posts in place. The dimensions of the concrete slurry for each fence post would be approximately 3 feet 4 inches deep and between 10 and 16 inches in diameter depending on where the fence post is located, as detailed in Appendix B of the UFC criteria (DoD 2007). The fencing toe would be buried up to 12 inches and secured to the ground using a security extension, curb, sheetpiling, piping, or other methods, or tensioned adequately with not more than 2-inch clearance above firm ground such that no more than a 5-inch gap may be made by lifting the fabric. Where needed, existing gates would be replaced at the same locations.

Type A fencing is used to secure areas with high mission or monetary value, aircraft parking areas, and as a barrier between flight line activities and the base cantonment or housing areas and is appropriate for the NOLF IB facility. In addition, the installation is considered to meet a Security Level Two Restricted Area standard according to the UFC standards. This is the second most secure type of restricted area and is applicable to aircraft hangars, ramps, aircraft rework areas, parking aprons, and runways, among other restricted areas. Under a Level Two security standard, fencing should be kept a minimum distance of 14 feet from all tree limbs and adjacent site elements to prevent aid in climbing.

The UFC calls for clear zones around the physical security barrier. The clear zone is defined in the UFC as an area free of obstacles, topographic features, and vegetation that reduce the effectiveness of the physical barrier, impede observation, or provide cover and concealment of an intruder. The UFC notes that vegetation within any clear zone should not exceed 6 inches in height. However, if clear zones are not feasible, consideration may be given to increasing perimeter barrier height, increasing security-patrol coverage, addition of security lighting, or installation of an intrusion detection system. The UFC for Naval facilities with minimum security levels defined calls for a combined 50-foot minimum clear zone

straddling the perimeter barrier. The security requirements should maintain a 20-foot minimum clear zone between the perimeter barrier and exterior structures (inclusive of the 14-foot setback to prevent aid in climbing), parking areas, and any features, and a 30-foot minimum clear zone between the perimeter barrier and structures within the protected area.

Under Alternative 1, within the fence maintenance corridor, a maximum vegetation height of 6 inches would be maintained within 30 feet on the inside of the new perimeter fence as it is currently maintained within the inside of the existing perimeter fence. Due to the presence of several federally listed species around the outside of the fenceline, however, if Alternative 1 were to be implemented, mowing would not be conducted within the entire 20-foot maintenance corridor outside of the fenceline in all locations. To the extent feasible, other vegetation management techniques that would still provide for adequate visibility for safety and security purposes would be implemented, which include select removal of isolated large shrubs and/or nonnative plants (generally over 4 feet tall), trimming of large shrubs and/or nonnative plants at or below 4 feet tall, and/or leaving cactus currently present adjacent to the exterior of the perimeter fenceline in place as a natural barrier. The spatial extent and exact locations where these other vegetation management techniques would be conducted within the 20-foot corridor outside the fence are not known, as they may vary from year to year. In addition, minor vegetation trimming and trampling along some portions of the 20-foot maintenance corridor outside of the fence where otherwise disturbance could have been avoided through use of nonmowing vegetative management techniques may be necessary during fence repair or replacement to remove vegetation that has grown through the existing fence. For these reasons, the analysis of Alternative 1 takes a conservative approach to the calculation of impacts by assuming that the entirety of the maintenance corridor would be mowed, with the result that actual impacts would be less than those described in Chapter 3.

It is estimated that project construction for Alternative 1 would last approximately 6 months, but actual duration would depend on the extent of fence replacement needed in relation to the amount of repair, which is unknown at this time. The earliest feasible construction start date is estimated to be October 2019, but the actual start date may be delayed by programming and funding constraints that are not fully known at present. In those areas where fencing would be replaced, the typical rate of fence demolition and installation would be approximately 400 linear feet per day but would vary based on specific conditions/terrain in any given area. Additional detailed assumptions about proposed demolition and construction activities are provided in Section 3.5, Air Quality and Climate Change.

2.2.2 Alternative 2: Improved Fence Alignment and Structural Improvements

This alternative includes the range of maintenance activities described for Alternative 1. However, this alternative involves (1) replacement of the existing perimeter fence in its entirety, (2) realignment of the existing perimeter fenceline in the area of the former small arms range, (3) construction of revetments in one area to address threats of existing and future erosion, and (4) realignment of the existing perimeter fenceline in some areas to address threats of existing and future erosion. In some instances, the latter would involve the elimination of fence faces that are oriented perpendicular or nearly perpendicular to river flows. In other instances, it would involve a straightening of the fence alignment to eliminate corner

areas in the vicinity of the active river channel. This would reduce the risk of waterborne wrack accumulation or erosive eddy development at the fenceline. In addition to reducing direct fence effects on flows, the realignment of the fence would also serve to reduce risk of fence undermining resulting from bank erosion. Alternative 2 would also include long-term maintenance of the newly replaced fenceline (including additional future replacement of fencing, as needed) and maintenance of all erosion measures described below.

Project Description

Per UFC *Security Engineering: Fences, Gates, and Guard Facilities* (DoD 2007), a maintenance corridor where vegetation is managed for safety and security would be incorporated into Alternative 2. Similar to Alternative 1, the fence maintenance corridor would be 50 feet wide, consisting of a 30-foot-wide area inside of the fenceline and a 20-foot-wide area outside of the fenceline. Within the fence maintenance corridor, a maximum vegetation height of 6 inches would be maintained within 30 feet on the inside of the new perimeter fence as it is currently maintained within the inside of the existing perimeter fence.

Due to the presence of several federally listed species around the outside of the fenceline, however, if Alternative 2 were to be implemented, mowing would not be conducted within the entire 20-foot maintenance corridor outside of the fenceline in all locations. To the extent feasible, other vegetation management techniques that would still provide for adequate visibility for safety and security purposes would be implemented, which include select removal of isolated large shrubs and/or nonnative plants (generally over 4 feet tall), trimming of large shrubs and/or nonnative plants at or below 4 feet tall, and/or leaving cactus currently present adjacent to the exterior of the perimeter fenceline in place as a natural barrier. The spatial extent and exact locations where these other vegetation management techniques would be conducted within the 20-foot corridor outside the fence are not known, as they may vary from year to year. In addition, minor vegetation trimming and trampling along some portions of the 20-foot maintenance corridor outside of the fence where otherwise disturbance could have been avoided through use of nonmowing vegetative management techniques may be necessary during fence replacement to remove vegetation that has grown through the existing fence. For these reasons, the analysis of Alternative 2 takes a conservative approach to the calculation of impacts by assuming that the entirety of the maintenance corridor would be mowed, with the result that actual impacts would be less than those described in Chapter 3.

Straightening the NOLF IB fence alignment to be more parallel to the active river channel and softening hard corners would provide a minimally invasive and cost-effective means to address the threat of erosion without the need to install other hard structures (such as rock riprap or sheet pile). The realignment would not alter or impact natural hydrology of the Tijuana River. The realignment would, however, change the existing acreage of the secured operational area (inside of the NOLF IB fenceline). In some study segments, this would result in a net decrease in area inside of the fenceline, while in others it would result in a net increase in area inside of the fenceline. In the area of the former small arms firing range, the existing fenceline juts out around the former range site. Under this alternative, an additional fenceline would be temporarily constructed northward and outside of the small arms firing range, effectively

placing the firing range outside of the secured perimeter of NOLF IB. The existing fenceline around the southern edge of the small arms firing range would be temporarily retained during IR sediment cleanup activities, effectively securing the site during the cleanup process. Following the cleanup of the firing range, the fenceline would be realigned through the firing range to connect adjacent fence segments into a straight line, and both the existing fenceline around the southern portion of the firing range and the temporary fenceline around the northern part of the firing range would be removed. The entire small arms firing range would be maintained/mowed even if the area is outside of the 20-foot maintenance buffer.

Under Alternative 2, as under Alternative 1, the new perimeter fence would conform to UFC standards for Type A fencing as detailed in *Security Engineering: Fences, Gates, and Guard Facilities* (DoD 2007). It would be composed of 2-inch-square chain link mesh and rise 7 feet high, surmounted by three strands of barbed wire (on the outrigger or barb wire arm), angled outward at 45 degrees, for a total height of 8 feet (DoD 2007). Under Alternative 2, fence posts would be spaced approximately 10 feet apart and the existing fence posts would be reused to the greatest extent practicable. If required, new fence posts would be placed in line with, and adjacent to, existing fence posts where feasible. Cement slurry would be used to cement the fence posts in place. The dimensions of the concrete slurry for each fence post would be approximately 3 feet 4 inches deep and between 10 and 16 inches in diameter depending on where the fence post is located, as detailed in Appendix B of the UFC criteria (DoD 2007). The fencing toe would be buried up to 12 inches and secured to the ground using a security extension, curb, sheetpiling, piping, or other methods, or tensioned adequately with not more than 2-inch clearance above firm ground such that no more than a 5-inch gap may be made by lifting the fabric.

Structural improvements that would occur under Alternative 2 include the installation of hard structures to combat erosion along the existing fenceline at the end of Runway 27. Under this alternative, the hard structures could include exposed rock revetments or self-stabilizing rock revetments (see Appendix A for details). These would be placed in the area shown as “Revetment Slope Protection” in Figure 2-1. The slope protection would be constructed in a manner that would not push the existing bank toward the river below the 100-year floodplain water surface elevation.

Under Alternative 2, the fence maintenance corridor would closely follow the existing perimeter fenceline, with two exceptions. The fenceline at the end of Runway 27 would be relocated inside of (at the top of) the proposed rock revetment slope stabilization to provide maximum protection of the fence during storm events. Aside from this realignment and the realignment in the vicinity of the former small arms firing range, the area of ground disturbance for fenceline work per se under Alternative 2 would be the same as under Alternative 1. Alternative 2 would feature additional temporary ground disturbance in the revetment construction area and additional permanent ground disturbance within the revetment area itself.

Any structural improvement implemented would be expected to require staging area(s), material storage and laydown area(s), and heavy equipment. Staging and laydown would primarily occur south of the perimeter road at the small arms firing range in an area that supports substantial disturbed upland. A second, smaller turnout area along the southern portion of the perimeter road would also be used as a

staging area (both of these staging areas are labeled as “Temporary Disturbance” in Figure 2-1). The perimeter road in this area is an 18-foot-wide asphalt paved road that has a moderately new (2010–2012) 1-inch overlayment surface over an older asphalt base. It is anticipated that, given the condition of the fill elsewhere on the airfield, this is a low vehicle weight road section with an inadequate subbase to support heavy equipment or truck loading that would be needed for structural improvement tasks. For this reason, it is anticipated that any bank revetment work would damage the perimeter road and result in the need for resurfacing the roadway in areas utilized by truck and equipment traffic, as well as work areas, as a part of the Proposed Action. It is assumed that the repair of this road would require new asphalt overlay with striping between the NOLF IB front gate and the bank stabilization work areas. Figure 2-2 illustrates the spatial extent of the differences between Alternatives 1 and 2.

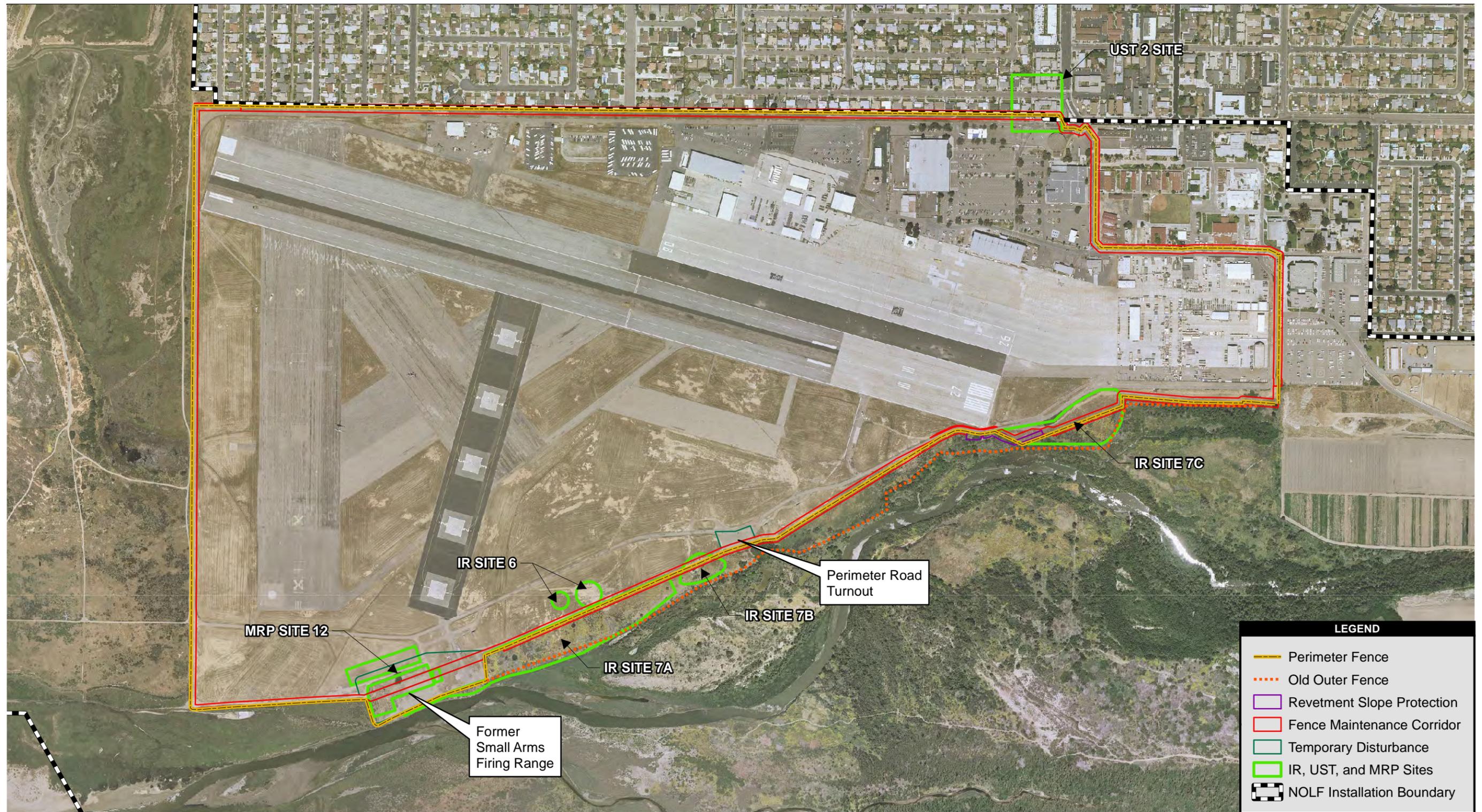
Construction Activities

A variety of tools and equipment may be necessary to remove the existing perimeter fence and replace it, along with replacing some, if not all, of the existing fence posts. These tools may include, but are not limited to, a bobcat with auger attachment, hand-held post hole diggers, other hand tools such as mesh puller, digging bar, vegetation trimming equipment, forklift, concrete equipment, and trucks. Additionally, minor vegetation trimming and trampling along the outside of the fence may be necessary to remove vegetation that has grown through the existing fence during fence replacement.

It is anticipated that project construction for Alternative 2 would last approximately 6 months. Similar to Alternative 1, the earliest feasible construction start date is estimated to be October 2019, but the actual start date may be delayed by programming and funding constraints that are not fully known at present. Construction would typically occur on weekdays between the hours of 7:00 a.m. and 4:30 p.m. The approximate duration of each construction phase would be as follows: demolition of existing fence, 30 days; grubbing/vegetation clearing, 20 days; construction of rock revetment, 30 days; access road repaving, 20 days; and fence construction, 30 days. The typical rate of fence demolition and installation would be approximately 400 linear feet per day but would vary based on specific conditions/terrain in any given area. Additional detailed assumptions about proposed demolition and construction activities are provided in Section 3.5, Air Quality and Climate Change.

Construction and Corridor Maintenance Locations

The existing perimeter fenceline encompassing the secured portion of the installation that would be replaced under Alternative 2 includes segments of fence that traverse or are adjacent to areas that include potentially sensitive biological resources as well as urban/developed areas. For the purposes of analysis within this EA, a biological resources study area has been designated that includes all areas with potential to support federally listed species that may be directly or indirectly affected by the Proposed Action. This study area is limited to an approximately 500-foot buffer extending approximately 250 feet on each side of the fence in the western and southern portions of the existing perimeter fenceline. It is anticipated that potential effects to listed species would occur within this 500-foot buffer area. The biological resources study area includes approximately 145.3 acres and includes the potential zone of influence for slope



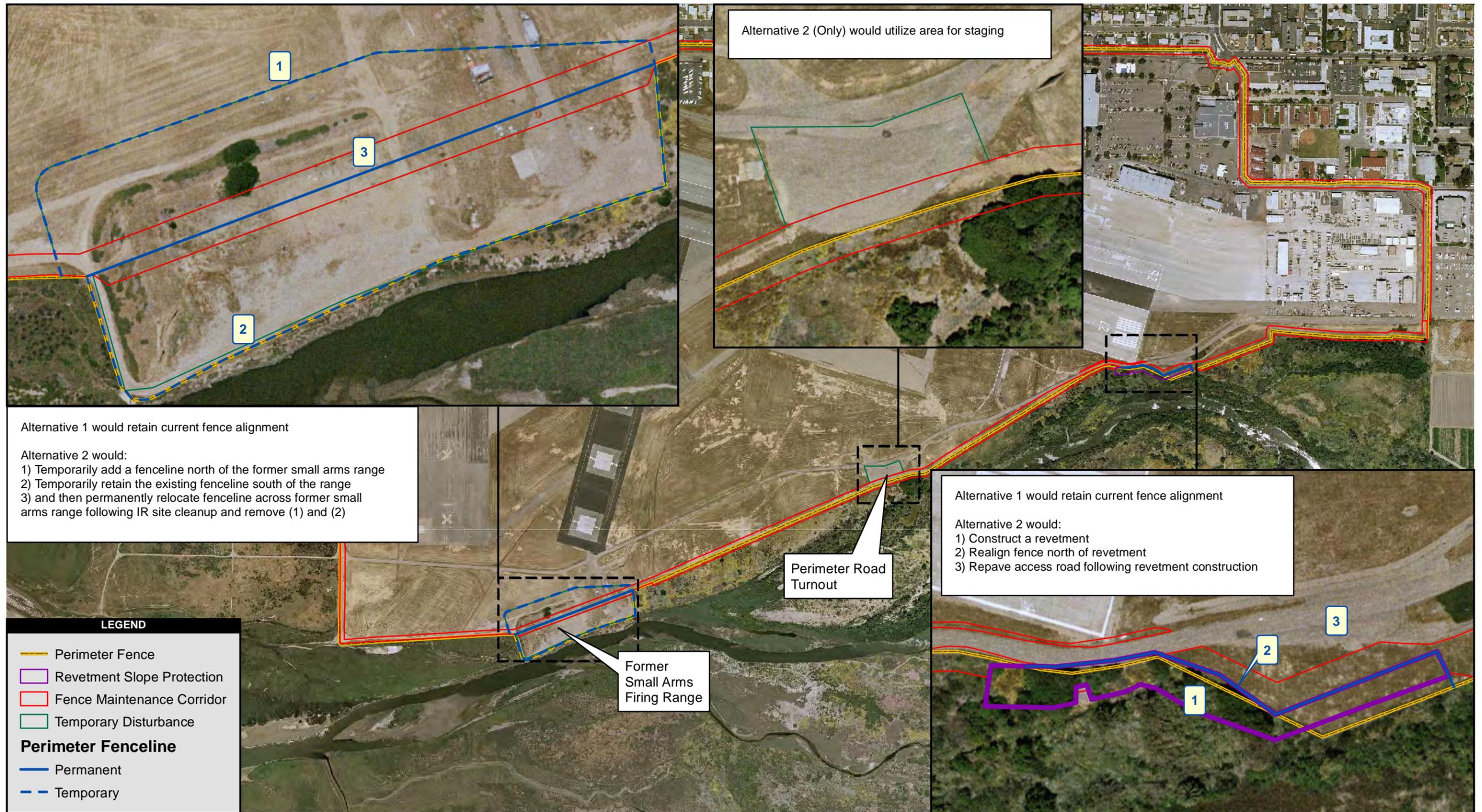
Source: LandisCor 2014; AECOM 2015; Merkel 2011



LEGEND	
	Perimeter Fence
	Old Outer Fence
	Revetment Slope Protection
	Fence Maintenance Corridor
	Temporary Disturbance
	IR, UST, and MRP Sites
	NOLF Installation Boundary

Figure 2-1
Proposed Action Area Detail Map

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Source: Landiscor 2014; AECOM 2015

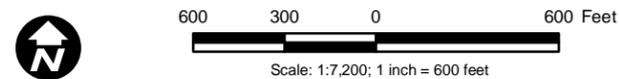


Figure 2-2
Key Feature Distinctions
Between Alternatives 1 and 2

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stabilization and erosion control components of the Proposed Action as well. It is the same area used for analysis in the Conceptual Fenceline Replacement 100% Design (Merkel & Associates 2014) included as Appendix A and for analysis in the Biological Assessment for this Proposed Action (Appendix B).

The northern and eastern portions of the existing perimeter fenceline occur entirely within and adjacent to developed cover type with no suitable habitat to support federally listed species, so these portions of the Proposed Action Area are not included within the biological resources study area. In these areas, the region of influence for most resources would be confined to the construction limit boundaries for the fence replacement itself.

Because the environmental conditions for fenceline repairs and replacement, and the need for slope stabilization and erosion control vary, the biological resources study area was divided into six study segments (Figure 2-3), which are also used for the analysis of other resources. The boundaries of five of the study segments were determined based on a combination of geographic features and the specific maintenance needs of individual fenceline sections. A sixth study segment includes the perimeter fenceline that would be replaced outside of the biological resources study area. The following sections discuss the proposed improvements within individual study segments in addition to fence replacement. More details of the proposed improvements are available in the Conceptual Fenceline Replacement 100% Design (Merkel & Associates 2014) provided in Appendix A.

Study Segment 1

Study Segment 1 (Segment 1) consists of the northern portion of the perimeter fence along the western boundary of NOLF IB (Figure 2-4). The topography in Segment 1 is relatively flat and stable with several culverts that cut through the habitat to drain the runways and uplands of NOLF IB. The Tijuana River channel does not run along this fenceline and there is little evidence of erosion or fence damage in this segment.

Proposed construction activities proposed under Segment 1 include replacement of the fenceline (2,175 linear feet) along the existing alignment, which would meet operational and security needs of NOLF IB.

Under Segment 1, a 30-foot maintenance corridor would be maintained as it currently is inside of the fenceline. Additional maintenance that may occur within 20 feet outside of the fence includes select removal of isolated shrubs (over 4 feet) or trimming of shrubs to a height of 4 feet or less.

Study Segment 2

The perimeter fence continues to traverse through Study Segment 2 (Segment 2), which extends from the central portion of the western boundary to the southwest corner of NOLF IB (Figure 2-5). The topography in Segment 2 is relatively flat and stable with several culverts that cut through the habitat to drain the runways and uplands of NOLF IB. The elevation at the fenceline along the western portion of this segment (in the southwest corner of NOLF IB) is below 8 feet. This low-lying and gently sloping

topography continues as the fenceline turns to the east. The Tijuana River channel does not run along this fenceline and there is little evidence of erosion or fence damage due to flooding or to scour at the base of the fence in this segment.

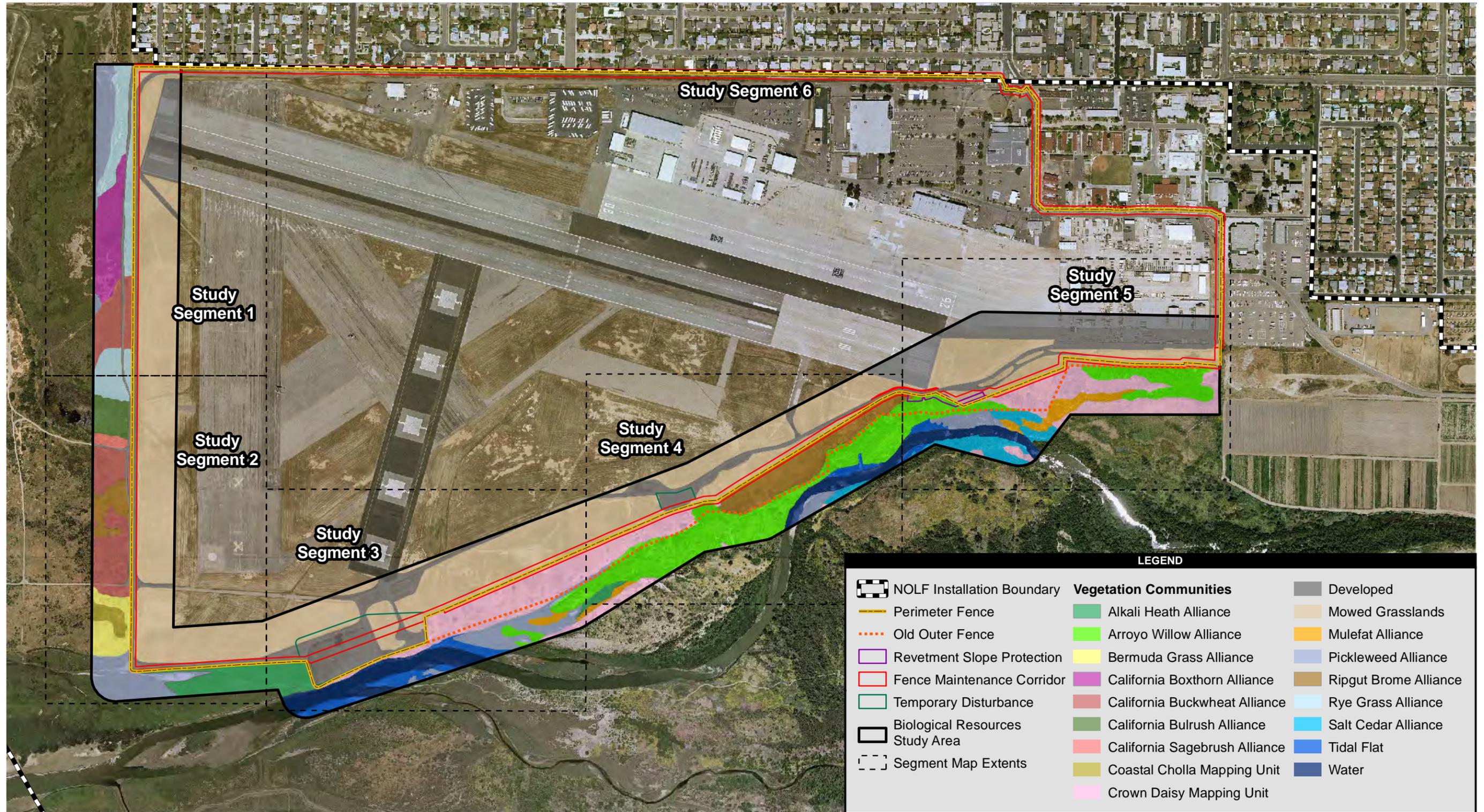
Construction activities proposed under Segment 2 include replacement of fenceline along the existing alignment (2,635 linear feet). Most of the perimeter fence in this area is deteriorated. Under this segment, removal and replacement of most of the fence post holes would be required. In addition, construction of new posts and setting of the new post holes in concrete may occur near jurisdictional waters along the fenceline. The placement of fence posts would avoid jurisdictional waters to the greatest extent feasible, or new fence posts would be placed in the same holes as the existing fence posts. This work would conform to requirements of Clean Water Act (CWA) Section 404 and Rivers & Harbors Act, Section 10 Nationwide Permit 3 for maintenance.

Under Segment 2, a 30-foot maintenance corridor would be maintained as it currently is inside of the fenceline. No blanket vegetation maintenance would be required outside of the fence, with the exception of removal of large shrubs, if they occur.

Study Segment 3

Study Segment 3 (Segment 3) extends along the southern fenceline of NOLF IB in the vicinity of the inactive small arms firing range (Figure 2-6). The perimeter fenceline is in place along the western portion of Segment 3. In the central portion of the segment, at the eastern edge of the old firing range, the perimeter fenceline intersects with the old outer fenceline. Here, the fenceline diverges, with the perimeter fenceline continuing eastward in a generally straight line. The old outer fenceline runs parallel to the active Tijuana River channel and is damaged and/or missing in several locations. The perimeter fenceline runs parallel to, and between, 150 and 200 feet north of the old outer fenceline in this segment. The topography along the western portion of Segment 3 is gently sloping. As the perimeter fenceline heads east through Segment 3 along the length of the firing range, the elevation along the fenceline increases to approximately 10 feet. The fenceline along the corner of the firing range berm and adjacent bunkers is within 10 feet of the active Tijuana River channel in some places. The firing range berm is a security concern as it prevents effective viewing of the perimeter fence by security patrols. The bank of the river channel outside of the fenceline in this area is steeply sloped and is not currently armored. However, chunks of concrete rubble occur along the riverbank adjacent to the firing range, forming an incomplete ad hoc riprap that stabilizes the adjacent uplands. The topography between the two fencelines within Segment 3 consists of gradually sloping uplands, with a steeper drop along the river channel that occurs just north of the old outer damaged fenceline.

Segment 3 is the subject of contaminant cleanup activities under the IRP and MRP programs. These activities are adaptive and respond to known contaminant distribution and distribution discovered during the cleanup efforts. Segment 3 contains Installation Restoration (IR) Sites 6 and 7 (shown in Figure 2-1). IR Site 6 was used for fire-fighting training from the 1950s to the late 1980s. On-site pits were used to burn aircraft hulls and other materials, using large volumes of combustible fluids, including fuels and



Source: LandisCor 2014; AECOM 2015

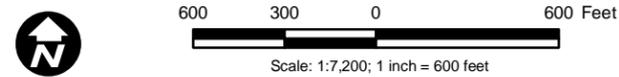
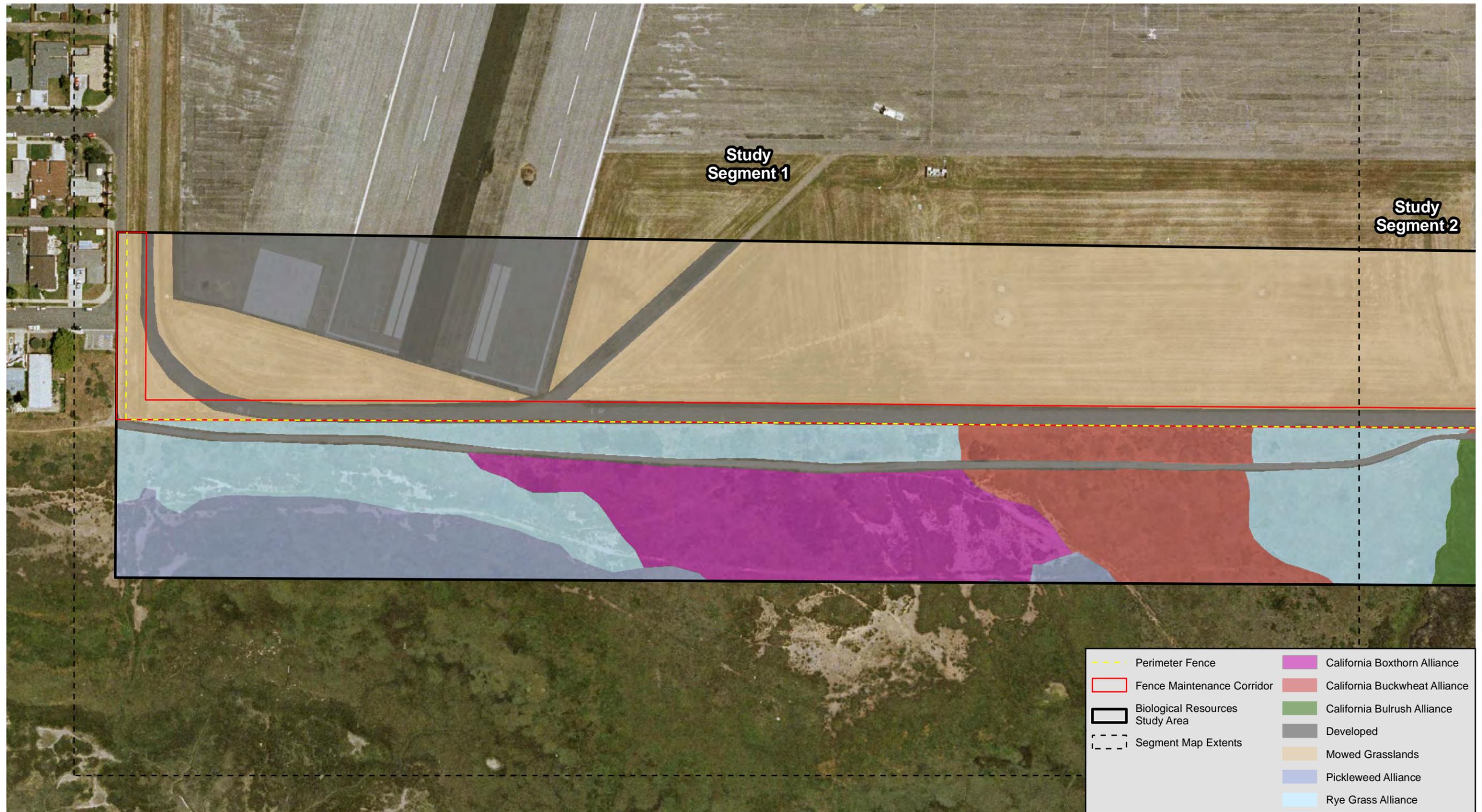


Figure 2-3
Proposed Action Area Segments Overview Map

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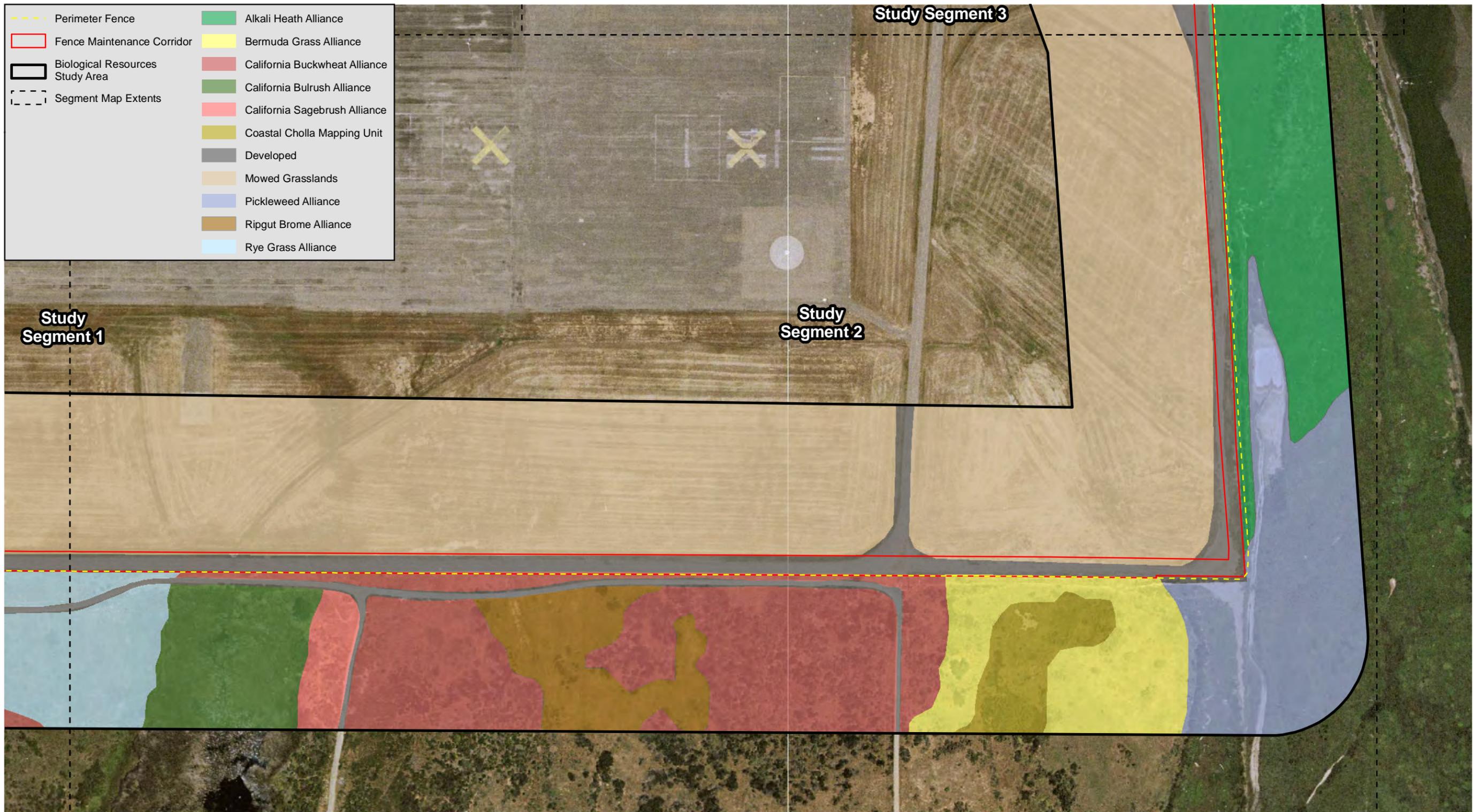


Source: LandisCor 2014; AECOM 2015



Figure 2-4
Study Segment 1

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Source: Landiscor 2014; AECOM 2015

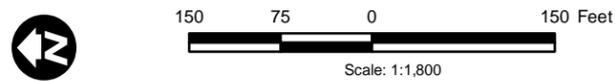
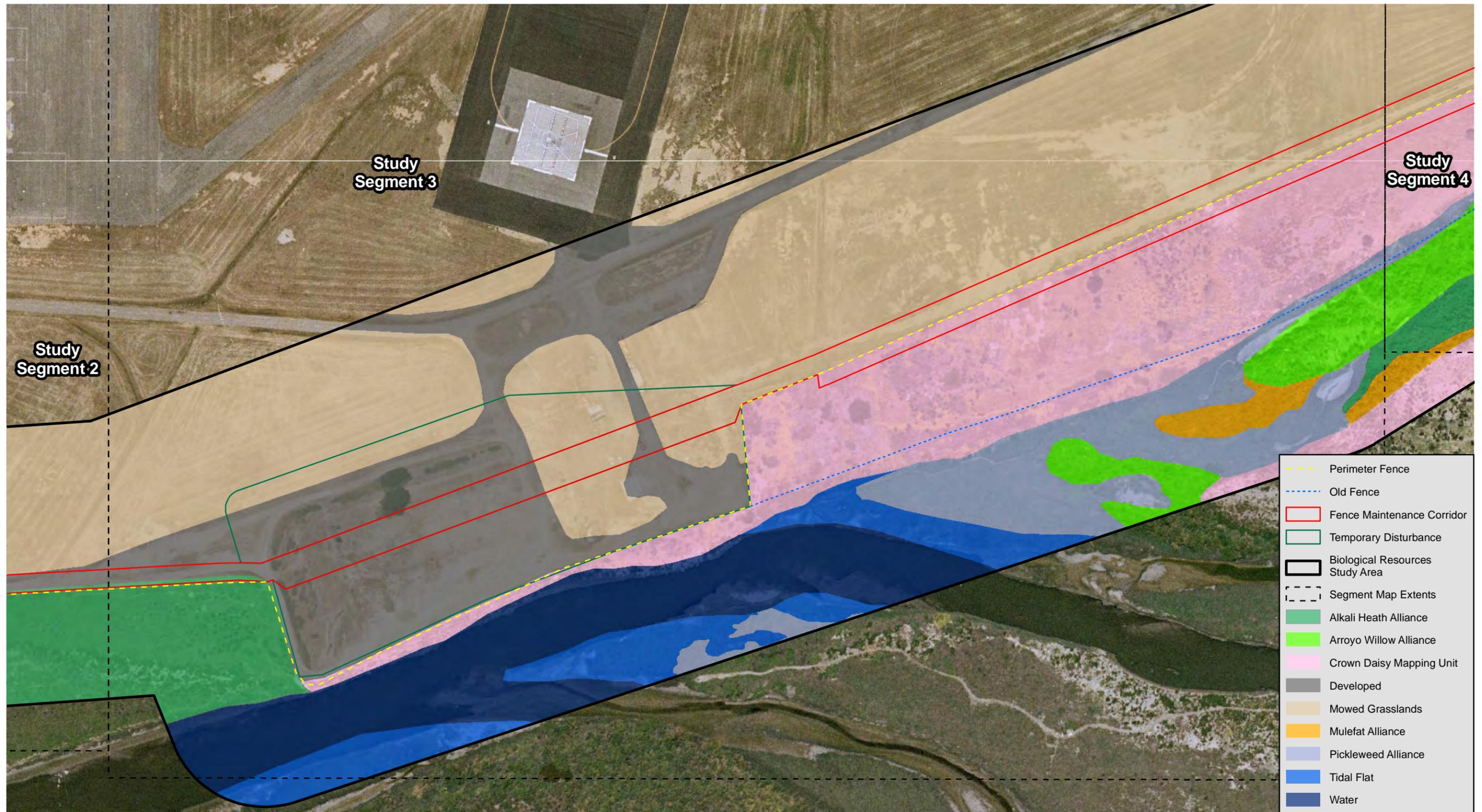


Figure 2-5
Study Segment 2

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Source: LandisCor 2014; AECOM 2015



Figure 2-6
Study Segment 3

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solvents. IR Site 7 was used for bluff stabilization and rubble disposal activities in the late 1940s through the early 1950s. Items placed at IR Site 7 included construction debris, creosote-treated pilings, and oiled soils. It is anticipated that this range facility would be closed and decommissioned at some point for mining and recovery of metals and potentially more extensive waste cleanup. The range decommissioning activities are not part of the Proposed Action. In addition, IR-related activities and impacts are not part of the Proposed Action and, therefore, will not be addressed in this EA. Section 3.7 (Public Health and Safety) does, however, consider the IRP and MRP sites (and more recently located radiological items outside of IR Sites 6 and 7) in relation to Proposed Action construction activities.

Proposed construction activities under Segment 3 include a staged relocation of the perimeter fence to accommodate both security concerns and uncertainties regarding the IR sediment remediation scale and timeframes. The first stage of fence replacement would involve construction of a new interim 858-foot section of fencing to be installed north of the small arms range berm. The old outer fence would remain in place behind the berm, but would no longer be maintained or serve as the primary security barrier. The relocated interim fenceline would consist of a double gate to access the small arms range area, allowing IR and range decommissioning activities to be undertaken in a semi-secured environment outside of the active airfield. After range decommissioning and backstop berm removal, a final fenceline alignment would be constructed. This final alignment would connect between the perimeter fence angles with a straight fence segment of 773 feet. The staged interim and final alignments would cross disturbed lands and would pull the fence away from the exposed river bank, thus providing flood protection to the fence without the need for additional structural improvements. The fence length for Segment 3, including both stages of relocation, would be 1,275 linear feet of replacement on the existing alignment, 858 linear feet of interim fence to the north of the small arms range, and 773 linear feet of final alignment fence to connect the fence into a straight line following IR cleanup and decommissioning activities. Segment 3 would total 2,906 linear feet of fenceline.

Under Segment 3, a 30-foot fence maintenance corridor would be maintained inside of the fenceline west of the small arms firing range. No vegetation removal would currently be required outside of the fenceline as surveillance views are not obstructed by vegetation in this area west of the small arms firing range. However, future maintenance may include trimming vegetation to 6 inches or less, removing isolated shrubs (over 4 feet), and/or trimming isolated shrubs to 4 feet or less. East of the small arms firing range, variable shrub cover of invasive weeds and a small patch of Diegan coastal sage scrub rises to heights of approximately 3 feet above grade and can seasonally obscure views along the 20-foot outer portion of the maintenance corridor. This area would maintain a 30-foot maintenance corridor inside of the fenceline and a 20-foot maintenance corridor outside of the fenceline. The only exception would be for the small patch of maritime succulent scrub located immediately east of the small arms firing range. This habitat is dominated by coast cholla that forms a dense stand along the fenceline, serving as a natural barrier to foot traffic. All other vegetation within the 20-foot maintenance corridor outside of the fenceline east of the small arms firing range would be maintained at a maximum vegetation height of 6 inches. For the interim fenceline segment located north of the firing range berm, the AT/FP clear zones would be maintained. The entire small arms firing range area outside the fenceline, with the exception of the berm itself, would be maintained.

Study Segment 4

Study Segment 4 (Segment 4) stretches from the central portion of the southern fenceline, past the Boundary Road turnout and stopping before the southern edge of Runway 27 (Figure 2-7). This area is delineated by two fencelines. The old outer fenceline runs parallel to, and has been substantially undermined by, the active Tijuana River channel. The perimeter fenceline runs parallel to the Boundary Road, heading into an area of more extreme erosion in Study Segment 5.

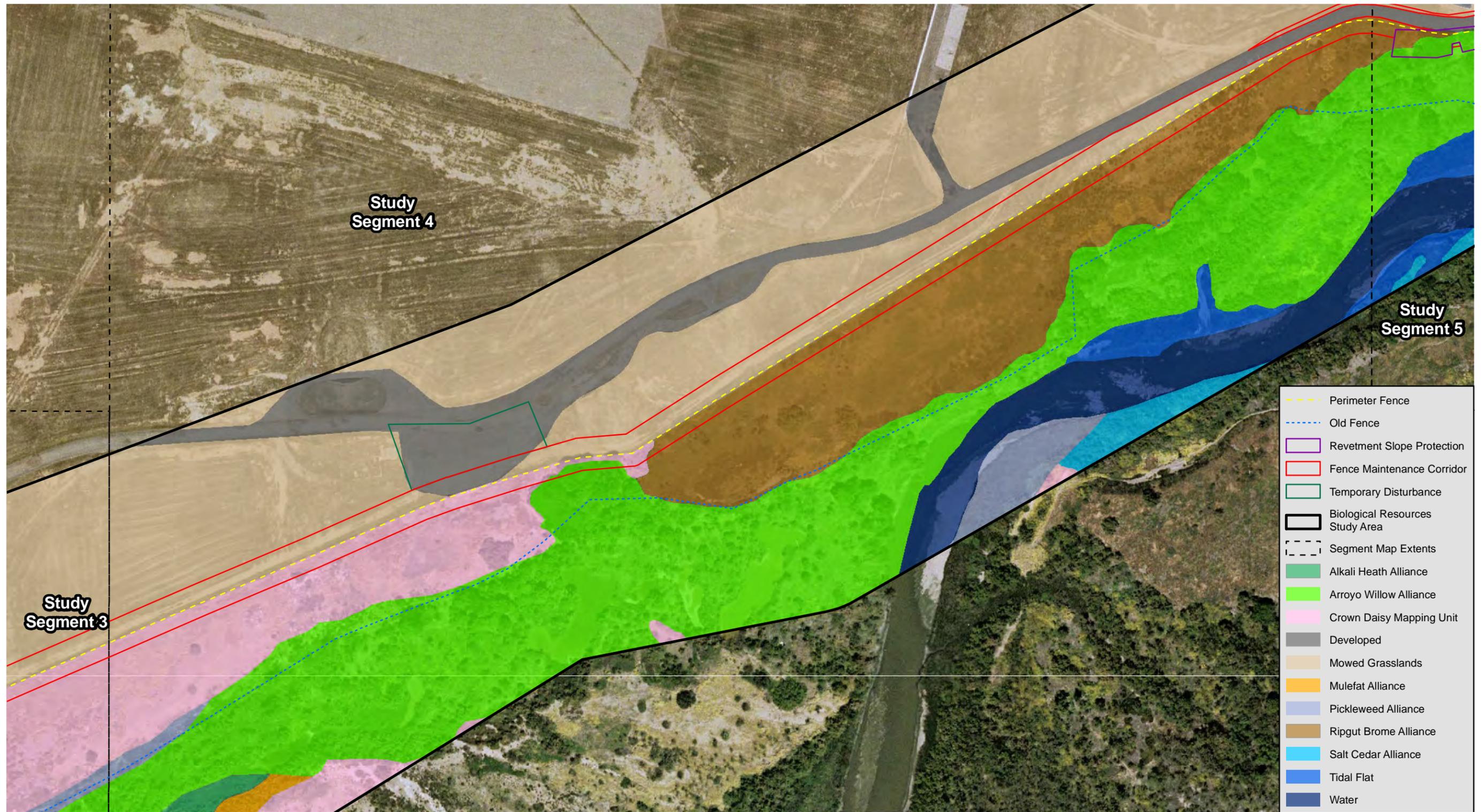
The intact perimeter fence within Segment 4 follows terrain that rises and falls considerably along the southerly airfield boundary. The elevation reaches 24 feet and drops as low as 13 feet where the fence is within the 100-year floodplain. Segment 4 contains many areas where past flood events have undermined or completely removed the old outer fence. The eastern edge of the segment abuts an area of severe erosion at the edge of Runway 27.

Proposed construction activities for Segment 4 would include replacement of the perimeter fenceline, for a total fenceline section length of 2,176 linear feet. The majority of Segment 4 is not in immediate danger from flood and erosion impacts, and maintaining the current alignment away from the active river channel would protect the fenceline from erosion and storm damage without the need for large-scale structural improvements. Repairing the bank erosion in Study Segment 5 at the end of Runway 27 would further reduce risks to the river bank in the adjacent Segment 4.

Under Segment 4, a 30-foot maintenance corridor inside of the fenceline and 20-foot maintenance corridor outside of the fenceline would be maintained in perpetuity.

Study Segment 5

Study Segment 5 (Segment 5) stretches from the edge of Runway 27 to the far southeastern boundary of NOLF IB (Figure 2-8). Segment 5 contains a portion of the old outer fence as well as the existing perimeter fence. In the vicinity of Runway 27, the old outer fence has been destroyed. The perimeter fenceline runs along the top of the riverbank and is in significant danger of being undermined by river erosion adjacent to Runway 27. East of Runway 27, the two fencelines are intact and run parallel to each other, approximately 30 feet apart, to the eastern edge of the property. At the east end of Segment 5, the fenceline elevation drops and portions of the intact existing perimeter fence are within the 100-year floodplain. The deepest inundation elevation anticipated at this fence segment is approximately 3.5 feet from the fenceline toe. Fence inundation in this area is not expected within the effective flow area, and there is limited anticipated risk of flood impact to the existing fence. Flooding may expose portions of the fence to some risk of potential scour damage due to concentrated flow during a subsiding storm. The active river channel bends southward away from the fencelines in this portion of the segment, and the fencelines are not in immediate danger of being damaged or undermined. A branch of the security road terminates in the middle of this segment, while the main road rises up the slope to parallel developed motor vehicle storage yards within the installation.



Source: LandisCor 2014; AECOM 2015

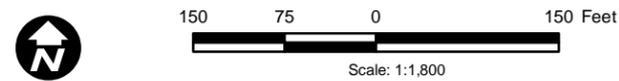
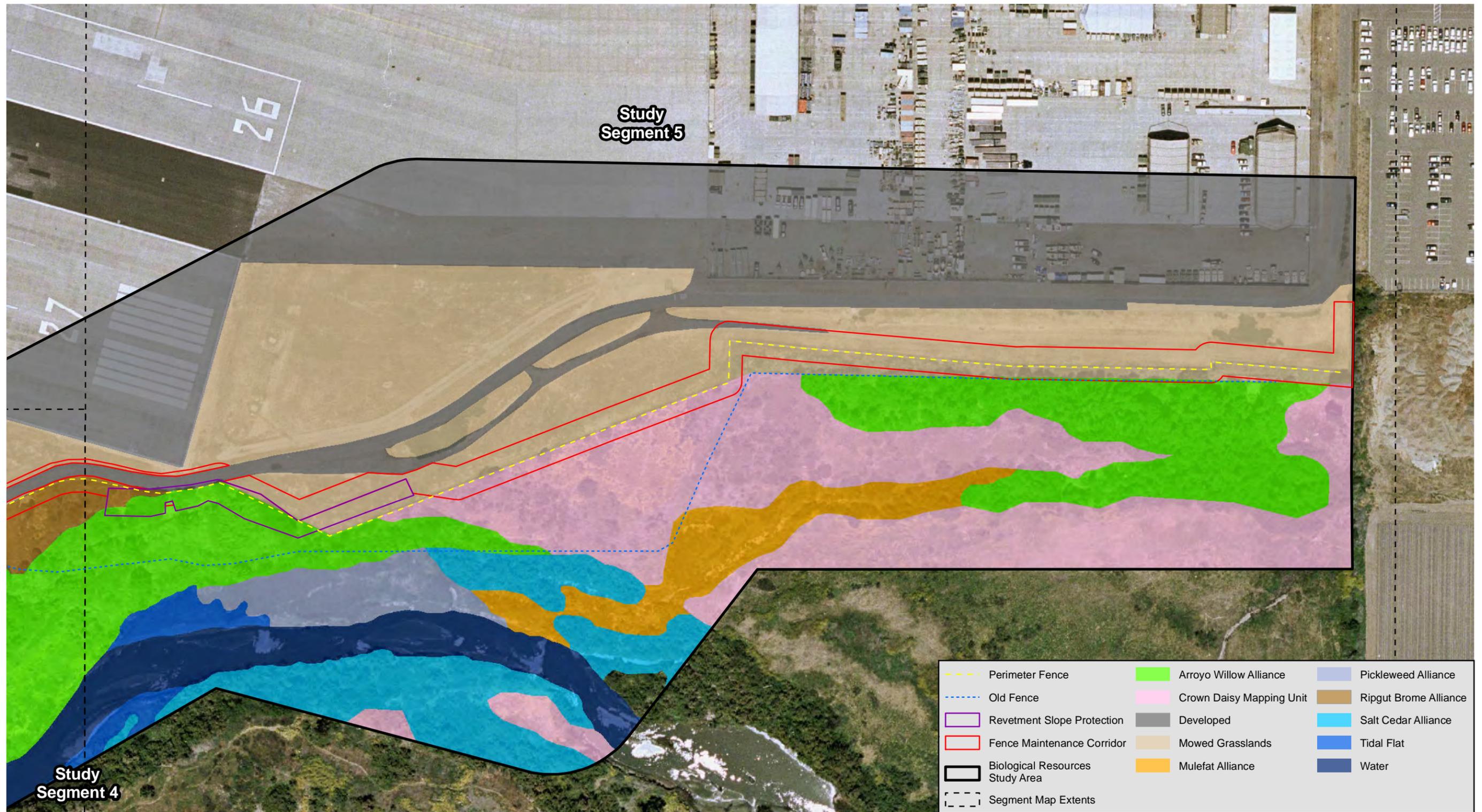


Figure 2-7
Study Segment 4

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Source: LandisCor 2014; AECOM 2015



Figure 2-8
Study Segment 5

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In the western portion of Segment 5 are multiple storm drain outlets that emerge at the river from beneath the airfield. All of these drains are protected from intrusion into the airfield by way of grating with 4- to 6-inch bar grates. Two culverts convey drainage from the runway areas of the airfield beneath the perimeter road to the river. The westernmost drain is a 24-inch reinforced concrete pipe (RCP) with headwalls on either side of the road leading to a small drainage swale that slopes to the river across a poorly constructed rubble revetment to the lower elevations of the river. Minor erosion occurs at the end of the channel with no hazard to the airfield. The second culvert is an 18-inch corrugated metal pipe (CMP) that discharges approximately 6 feet below the top of the bank onto an approximately 75-pound riprap revetment apron that extends steeply from the drain down about 8 feet to the bottom of a tidally influenced storm drainage canal that parallels the bottom of the airfield bank. Approximately 60 feet to the east of the CMP revetment apron are two large headwalls that support much lower storm drains that drain lands to the north of the runway. These drains are approximately 18-inch and 48-inch RCP drains. Both drains discharge within tidally influenced waters. The storm drain channel is separated from the main river channel by a berm. The bank opposite the two drains within the discharge channel is armored by approximately 25-pound revetment stone. The revetment stone has prevented erosion of the berm by flows discharging from the drains.

The airfield slope at the east end of Segment 5 drops steeply to the storm drain channel with the perimeter fence being located immediately on top of the slope and Boundary Road being adjacent to the fence at the tight corner of the eastern end of Runway 27. From this pinch point, the fence continues to follow the top of the slope for some distance to the east before diverging from the riverbank. Just to the east of Runway 27 are surface indicators that identify that the airfield fill contains considerable concrete rubble. In multiple locations, there are sinkholes where water has entered the fill and filtered down through a matrix of concrete rubble removing fine sediments through piping, which may result in hydrologic destabilization and risk of catastrophic failure in an erosive river flow event.

Proposed construction activities for Segment 5 would include replacement of 2,198 linear feet of perimeter fenceline along the existing alignment to the east of Runway 27, outside of the area that is at significant risk of damage. Structural improvements proposed under Segment 5 include removal of existing facing soil and rubble, and replacement of the erosive slope with an engineered revetment slope to prevent the slope from encroaching into the floodplain more than the existing bank. This would not alter the sectional volume of the river where the armoring is placed. Further, because the revetment would be constructed within the footprint of the existing slope, the bank cut would occur above the highest high tide with deeper cuts being made outside of the jurisdictional tidal waters. The length of the stabilization required has been estimated at approximately 450 feet. The location is proposed at the east end of Runway 27 where the runway, perimeter fence, and security roadway are at risk of damage in the event of severe bank erosion.

The depth of scour is approximately 1 foot in the area where the revetment slope would be constructed. The perimeter fenceline would be placed at the top of and inside of the revetment for maximum fence protection. In some areas, this would result in a relocation of the fence alignment away from the active river channel and farther into the NOLF IB. The small decrease in secure area would be offset by the

increased fence protection. The location of the fenceline along the top of the revetment would also maximize fence visibility from the perimeter road providing improved security.

Bank stabilization would be configured to conform to the existing slopes. First, the revetment would be developed within the envelope of space occupied by the current bank where the revetment would extend below the 100-year floodplain elevation. This would result in the existing bank being cut back to accommodate placement of new revetment. The area within which the revetment work would be performed is on disturbed lands, occupied by nonnative grasslands and nonnative riparian woodland. These habitats do not support listed species and are not suited to supporting listed species. Further, the revetment slope would be within the security clear zone. The revetment is proposed to be exposed and not covered with soil to discourage the growth of vegetation, thus reducing maintenance requirements.

It is anticipated that repairs of the perimeter road would include placement of a new 1-inch asphalt overlayment and restriping of the roadway. This is a routine form of ongoing maintenance that typically occurs on installation roadways. Construction of the Proposed Action, however, would require heavy truck traffic on a nonengineered road surface in this segment (i.e., inadequate base foundation development over a nonstructural fill). This would result in substantial damage to the road, accelerating the need for repaving and restriping over and above routine maintenance. Repaving and restriping would not be expected to require additional laydown or staging. The activities are performed with trucks bringing in new hot asphalt, roller compactors, and scarifying equipment that roughens the surface of the existing asphalt to accept a new surface. Painting is performed by a single truck.

Under Segment 5, a 30-foot maintenance corridor inside of the fenceline would be maintained. In the vicinity of the structural rock revetment, a 20-foot maintenance corridor outside of the fenceline would be maintained. East of the structural improvements at Runway 27, a 20-foot maintenance corridor would be maintained outside of the fenceline. This maintenance corridor outside of the perimeter fence at the eastern end of NOLF IB would result in removal of 0.03 acre of arroyo willow alliance with the potential to support the endangered Least Bell's Vireo (*Vireo bellii pusillus*). This maintenance corridor would be approximately 20 feet in width for a distance of 520 feet along the alignment.

Study Segment 6

Study Segment 6 (Segment 6) includes the balance of the perimeter fenceline (7,946 linear feet) that is not within the biological resources study area (Figure 2-3). From the eastern terminus of Segment 5, the perimeter fenceline within Segment 6 continues north along Boundary Road, heads west along Gatlin Street, turns north along Lexington Street, and finally runs west along Tower Road, eventually connecting with the northern terminus of Segment 1. This segment runs exclusively along on-installation roadways, except where it parallels a portion of Iris Avenue between 5th Street and Connecticut Street in Imperial Beach. This entire segment is confined to areas with urban/developed or disturbed cover types.

2.2.3 No Action Alternative

The Navy has analyzed the No Action Alternative in this EA in accordance with statutory requirements and to provide a baseline against which to measure environmental consequences of the action alternatives. Under the No Action Alternative, the NOLF IB perimeter fence would not be replaced. It would remain in damaged condition and would not provide protection for personnel and security for operational areas, and thus would not comply with the DoD UFC as prescribed by MIL-STD 3007 and the AT/FP requirements. Existing erosion and damage issues would not be addressed. The purpose and need of the Proposed Action would not be met.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR DETAILED ANALYSIS

2.3.1 Outer Perimeter Security Fenceline Reconstruction Alternative

A second perimeter security fenceline maintenance alternative to replace the old outer perimeter fence was considered. Extensive portions of this outer fenceline have been damaged, downed, or removed completely by high flow events in the adjacent Tijuana River channel and other factors described previously. Erosion has undermined the ground along much of the outer fenceline alignment. Replacing this fenceline would require significant impacts to wetlands and extensive structural improvements.

Further, as a result of migration of the river channel, portions of the outer fenceline are located within failed banks of the river channel, while other portions are located several feet below the 100-year floodwater surface elevation within the effective flow area of the river and/or sensitive wetlands. This was not considered a practical alternative and would be unlikely to meet permitting and regulatory requirements. Further, if constructed, the fence would be expected to require high maintenance costs and provide a low security benefit due to obstructed surveillance visibility and regular breaches by storm damage and bank undermining following significant storm events. As a result of these issues, this alternative was not carried forward.

2.3.2 Additional Structural Improvements Alternatives

Gabion Basket

The principal benefits of the gabion baskets are the ability to develop steeper slopes in land-limited environments and an ability to plant the steeper slopes with desirable vegetation. Gabion baskets may be constructed either as an unsupported pyramid or a layback section where the gabions rely on the earthen slope for back buttressing in a buttress slope design. The lifespan of a gabion basket slope protection in the river environment was estimated at 30 years given a combination of liquefiable sands, saline soil environments, and large waterborne debris potentially impacting and damaging the gabion baskets during high flow events. Damage to the baskets would put the structures at risk of failure as a result of rock fill

release. Based on the high capital cost and relatively short lifespan anticipated for gabion structures, this alternative was not carried forward.

Sheetpile Bulkhead

Sheetpiles are interlocking sheets of steel or vinyl that extend vertically from the ground surface to below scour depths. The sheetpile may be freestanding or rely on soil nails or tiebacks embedded behind the wall, walers, or other components. In general, sheetpile walls cannot be driven in areas where the soil matrix supports large hard rock or concrete rubble deposits. This would likely restrict applicability of this stabilization structure in some areas of the NOLF IB fenceline. Sheetpile bulkhead was considered to stabilize the shoreline along the small arms firing range berm, and along the southeastern edge of Runway 27. However, there is evidence of concrete rubble and other debris placed as fill and as ad hoc shoreline stabilization in these areas. Costly sample drilling would be required to determine the composition of the soil matrix in these areas and it is likely that large hard rock or concrete rubble deposits would make sheetpile installation infeasible. Therefore, this alternative was not carried forward.

2.4 SUMMARY COMPARISON OF ALTERNATIVES

A summary comparison of the potential environmental impacts, mitigation measures, and impact avoidance and minimization measures for each of the alternatives is presented in Table 2-1.

**Table 2-1
Summary of Effects**

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
3.1 Topography, Geology, and Soils	<p><u>Impacts:</u> Changes in topography would be relatively minor involving construction site leveling. NOLF IB possesses highly erodible soils. Strong seismically induced ground motion and associated ground shaking could occur. Adverse effects attributable to liquefaction and settlement are considered minor. Alternative 1 development would mostly occur outside the tsunami inundation area. No significant risk of seiches and landslides would occur. No significant geology and soils impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design 	<p><u>Impacts:</u> The topography, geology, and soils impacts would be the same as Alternative 1.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. Prepare and comply with geotechnical studies that would be conducted for the fenceline and revetment construction sites during project design. Incorporate slope stabilization (i.e., rock revetment) to minimize 	<p><u>Impacts:</u> No effects on topography, geology, and soils. Existing erosion issues would not be addressed.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>specifications of the Structural Engineering Association of California.</p> <ul style="list-style-type: none"> • Prepare and comply with geotechnical studies that would be conducted for the fenceline construction site during project design. • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP. 	<p>scour and bank erosion and avoid soil impacts.</p> <ul style="list-style-type: none"> • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP. 	
3.2 Water Quality and Hydrology	<p><u>Impacts:</u> Construction- and operation-related impacts to receiving waters would be minimized/avoided with implementation of BMPs. No significant impacts to floodplains would occur. No significant hydrology or water quality impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. • Implement sediment and erosion control measures during and after construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff. 	<p><u>Impacts:</u> Temporary construction-related impacts would be greater than Alternative 1. Realignment of fenceline and bank stabilization would avoid floodplain impacts. No significant hydrology or water quality impacts would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. • Implement sediment and erosion control measures during and after construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff. • Realign fenceline out of floodplain. • Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid impacts to the floodplain. 	<p><u>Impacts:</u> No effects on hydrology and water quality.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>
3.3 Biological Resources	<p><u>Impacts:</u> There would be a permanent direct impact to 0.03 acre of suitable habitat for Least Bell's Vireo.</p> <p>Temporary direct impacts to San Diego fairy shrimp-occupied basins, Least Bell's Vireo, and Light-footed Ridgway's Rail may include construction-related noise and dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal, and increased</p>	<p><u>Impacts:</u> The biological resources impacts would be the same as Alternative 1.</p> <p><u>Mitigation Measures:</u> Measures for unavoidable impacts to waters of the U.S. would be the same as for Alternative 1.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Impact avoidance and minimization measures would be the same as for Alternative 1.</p>	<p><u>Impacts:</u> No impacts to biological resources.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>predation by perch availability on construction equipment and materials storage.</p> <p>Permanent indirect impacts to flora and faunal resources may include the introduction of invasive plant species into newly disturbed areas that spread into adjacent undisturbed areas and predation by predators perching on the new fence.</p> <p>Temporary direct impacts to waters of the U.S. may include construction-related dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal.</p> <p>Permanent indirect impacts to waters of the U.S. may include the introduction of invasive plant species into areas newly disturbed by fence replacement activities that later spread into adjacent undisturbed areas (that may be downstream from the fence replacement location).</p> <p><u>Mitigation Measures:</u> Unavoidable impacts to waters of the U.S. would require compensatory mitigation for both temporary and permanent impacts, as well as a USACE CWA Section 404 Permit for placement of dredged or fill material within waters of the U.S. and a RWQCB CWA Section 401 state water quality certification for an action that may result in degradation of waters of the state.</p> <p><u>Impact Avoidance and Minimization Measures:</u> A total of 21 special conservation and construction measures for biological resources listed at the end of Section 3.3.3.2 (and in Appendix B, Sections 2.4 and 2.5) would be incorporated as part of the Proposed Action and would avoid and/or minimize many potential direct and indirect impacts to sensitive biological resources. These include general conservation measures (conservation measure [CM] 1 through CM-11) as well as species-specific conservation measures for San Diego fairy shrimp (CM-12 through CM-15), Light-footed Ridgway’s Rail (CM-16 through CM-20), and Least Bell’s Vireo (CM-21).</p>		
3.4 Cultural Resources	<u>Impacts:</u> Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-	<u>Impacts:</u> Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-	<u>Impacts:</u> No effects on cultural resources.

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>	<p>9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>	<p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>
<p>3.5 Air Quality and Climate Change</p>	<p><u>Impacts:</u> Under Alternative 1, annual emissions of nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 1 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}), for Alternative 1 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be significant under NEPA.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets. • Incorporate abatement measures if asbestos-containing building materials 	<p><u>Impacts:</u> Under Alternative 2, annual emissions of the nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 2 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}), for Alternative 2 from 2015 through 2024 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be significant under NEPA.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water 	<p><u>Impacts:</u> No new construction or operational pollutant emissions sources would be generated; therefore, local and regional air quality would not be affected.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>or lead-based paint is determined present during demolition.</p>	<p>sweepers) if visible soil material is carried onto adjacent paved streets.</p> <ul style="list-style-type: none"> Incorporate abatement measures if asbestos-containing building materials or lead-based paint is determined to be present during demolition. 	
3.6 Noise	<p><u>Impacts:</u> Under Alternative 1, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> <u>Noise Complaint Reporting</u> – A telephone hot-line would be established by the construction contractor for use by the public to report any significant adverse noise conditions associated with the construction of the Proposed Action. This hot-line telephone number would be posted at the project site during construction in a manner visible to passersby.</p> <p><u>Noise Complaint Investigation</u> – Throughout the construction of the Proposed Action, complaints would be submitted to the Base and resolution would be coordinated with the contractor via NAVFAC’s Facilities Engineering and Acquisition Division. The contractor would take all reasonable measures to reduce the noise at its source.</p> <p><u>Construction Practices</u> – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing construction noise levels at nearby noise-sensitive receivers:</p> <ul style="list-style-type: none"> Minimize noise-intrusive impacts during most noise-sensitive hours (e.g., 10:00 p.m. to 7:00 a.m.). Plan noisier operations during times of highest ambient noise levels. Keep noise levels relatively uniform; avoid excessive and impulse noises. To the extent practical and unless safety provisions require otherwise, all audible back-up alarms should be adjusted downward in sound level, reflecting locations that have expected 	<p><u>Impacts:</u> Under Alternative 2, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Use same measures as for Alternative 1.</p>	<p><u>Impacts:</u> No new construction or operational noise would be generated; therefore, noise would not be affected.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>lower background level, while still maintaining adequate signal-to-noise ratio for alarm effectiveness. Signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, would also be options for reducing reliance on high-amplitude sonic alarms.</p> <ul style="list-style-type: none"> Stationary noise sources, such as generators and air compressors, would be placed away from affected noise-sensitive receivers to the farthest extent practical. <p><u>Equipment Noise Reduction</u> – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise:</p> <ul style="list-style-type: none"> Minimize the use of impact devices, such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal. Pneumatic impact tools and equipment used at the construction site would have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations. Provide impact noise-producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise. Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces). Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines. 		
3.7 Public Health and Safety	<p><u>Impacts:</u> Construction activities would be typical and would occur within the footprint of NOLF IB, and would include all standard construction safety procedures. Construction activities would not result in a significant public health and safety impact.</p> <p>Operation and maintenance activities would pose no substantial risk to public health and safety.</p>	<p><u>Impacts:</u> Same as Alternative 1.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Same as for Alternative 1.</p>	<p><u>Impacts:</u> No significant public health and safety impacts.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u> None.</p>

Resource	Alternative 1 Perimeter Fenceline Maintenance	Alternative 2 Improved Fence Alignment and Structural Improvements	No Action Alternative
	<p>Terrorist activity, although unlikely, would not be considered a significant impact on public health and safety.</p> <p><u>Mitigation Measures:</u> None.</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Compliance with the NBC Installation Emergency Management Plan and its relevant supporting plans. • Where construction would occur in the footprint of a Defense Environmental Restoration Program (ERP) site or within the area of recent discovery of low level radiological objects, the construction would be coordinated with the ERP Remedial Project Manager to determine if any worker health and safety measures need to be taken. • Manage and dispose of disturbed soil or debris in the event that residual contamination is encountered in accordance with Navy guidance (OPNAVINST 5090.1D and 5100.23), and applicable state and federal regulations. • A plan or guidance for the contractor should be in place in the event that unforeseen materials are discovered during construction. This would include communication and follow-on action protocol. • Compliance with all standard construction safety procedures and applicable subparts of the Occupational Safety and Health Administration standards would occur. 		

CHAPTER 3.0

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the conditions of the affected environment and environmental consequences for resources potentially affected by implementation of Alternative 1, Alternative 2, and the No Action Alternative, as described in Chapter 2. As described in Chapter 1, resources potentially affected include topography, geology, and soils (Section 3.1); water quality and hydrology (Section 3.2); biological resources (Section 3.3); cultural resources (Section 3.4); air quality and climate change (Section 3.5), noise (Section 3.6); and public health and safety (Section 3.7).

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3.1 TOPOGRAPHY, GEOLOGY, AND SOILS

3.1.1 Affected Environment

3.1.1.1 Region of Influence

For the Proposed Action alternatives, the topography, geology, and soils region of influence (ROI) would be confined to the construction and or operation areas of the Proposed Action alternatives within NOLF IB. Only within these areas would soil and geologic disturbance occur under the Proposed Action alternatives. Regional seismic activity could affect the proposed alternatives but the effects would occur on-site; the Proposed Action alternatives would not affect or influence seismic conditions in the region.

3.1.1.2 Topography

NOLF IB is within the low-lying, relatively level coastal area south of San Diego Bay within the Tijuana River Valley. The NOLF IB complex is situated on a marine terrace, with relatively gentle slopes of less than 9 percent. The elevation range along the NOLF IB fenceline is approximately 8 to 24 feet above mean sea level. NOLF IB is located within the Tijuana River Watershed, a 1,750-square-mile watershed with 73 percent of its area in Mexico. All the water is funneled into the Tijuana River, which meanders along the southern boundary of NOLF IB, before emptying into the Pacific Ocean less than a mile to the west of NOLF IB.

3.1.1.3 Geology and Soils

NOLF IB occupies approximately 1,257 acres in southwest San Diego County, in the Tijuana River Valley, south of the Silver Strand peninsula. NOLF IB is situated within the coastal plain of the Pacific Ocean. The installation is very flat with very little change in elevation. Tidal flats are situated in the western portion of the installation along the Tijuana River (U.S. Navy 2006). Recent geologic factors that have shaped the estuary are the competing forces of rising sea level, which promotes inland migration of the estuary, and tectonic uplift, which reverses that trend. The location of the shore and the configuration of the mouth are additional variables that influence the size and condition of the estuary (NERRS 2009).

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific plate, following a northwesterly path while grinding against the North American Plate. As a result, grinding, earthquakes, and past volcanic activity, in combination with weathering processes, have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006).

Figure 3.1-1 shows the soils at NOLF IB and Table 3.1-1 summarizes acreages of the primary soil types found within the Proposed Action Area and their designation as “hydric” by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). Hydric soils are defined as those soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season.

**Table 3.1-1
Soil Types within the Proposed Action Area**

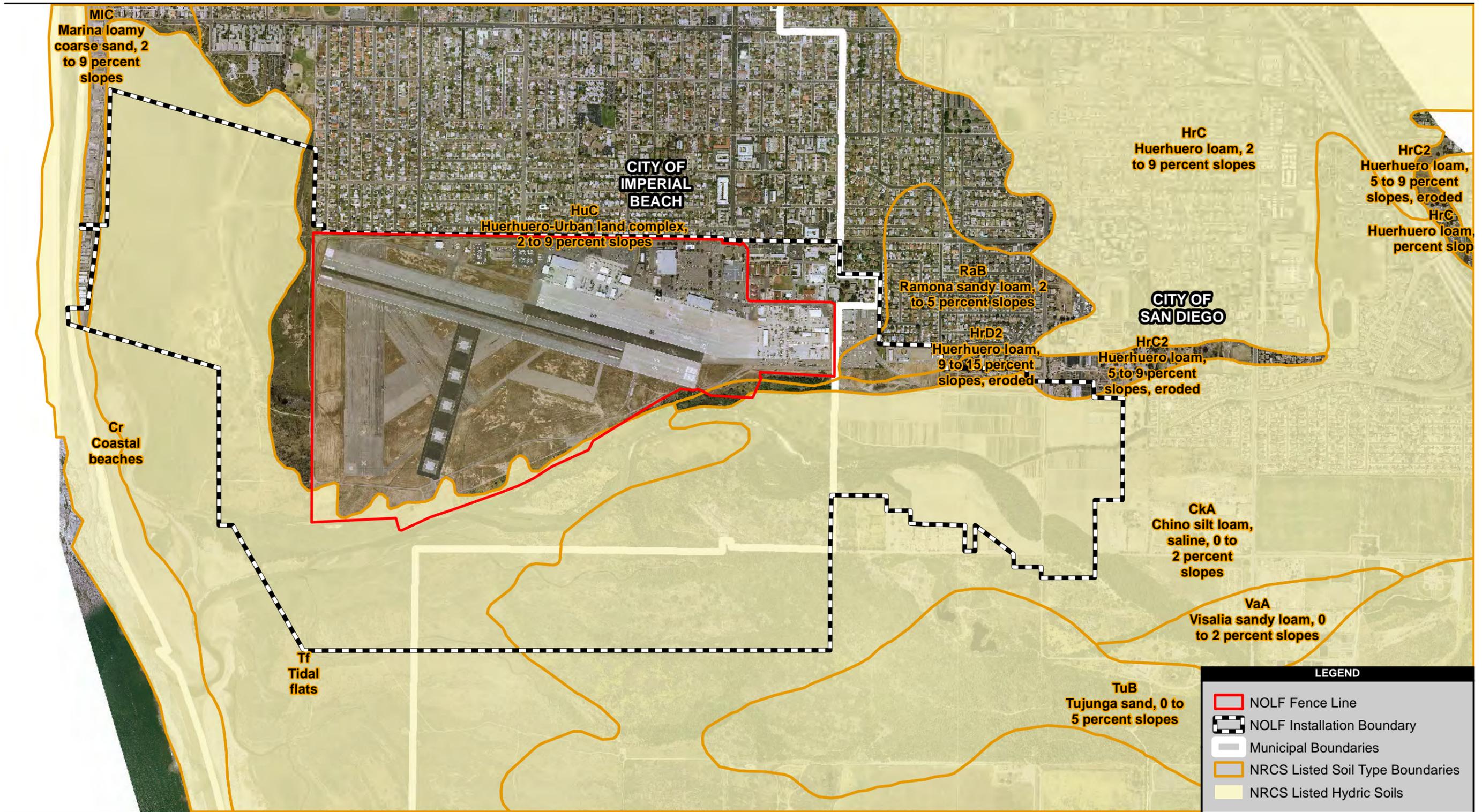
Soil Type	Soil Characteristics	Hydric Status
Huerhuero-Urban Land Complex (HuC)	This complex occurs on marine terraces from sea level to 400 feet. The landscape has been altered through leveling activities for building sites. The material that has been built upon is a mixture of loam and clay loam and sandy marine sediments. Approximately 65 percent of NOLF IB occurs on this type of soil, including the airfield and associated buildings.	No
Tidal Flats (Tf)	Tidal flats occur within level areas and are periodically inundated with tidal water. The higher areas of tidal flats are seldom inundated during high tide and support salt-tolerant vegetation. Approximately 22 percent of NOLF IB occurs on this soil type, primarily along its southern boundary along the Tijuana River.	Yes
Chino Silt Loam, 0 to 2 Percent Slopes (CkA)	This soil is silt loam to loam throughout and is slightly saline. The available water-holding capacity is 7.5 to 10 inches. This soil type was formed in alluvium derived from granitic rocks. Approximately 12 percent of NOLF IB occurs on this type of soil in the southeast corner near the Tijuana River.	Yes
Huerhuero Loam 9 to 15 Percent Slopes, Eroded (HrD2)	This soil is strongly sloping and the available water-holding capacity is 3.5 to 5 inches. Runoff is medium, and the erosion hazard is moderate. Approximately 1 percent of NOLF IB occurs on this soil type located in a small strip along the eastern portion of NOLF IB between the airfield and the Tijuana River (NRCS 2011).	No
Ramona Sandy Loam, 2 to 5 percent Slopes (RaB)	This soil is formed in alluvium derived from granitic and similar rock sources. It is found on terraces and fans with slopes ranging from nearly level to moderately steep. Approximately 1 percent of NOLF IB is located on this soil type.	No

3.1.1.4 Geologic Hazards

Seismicity

The California Geological Survey classifies faults as either active or potentially active, according to the Alquist-Priolo Special Studies Zone Act of 1972. The California Geological Survey defines an active fault as a fault that has exhibited surface displacement within the Holocene Epoch (the last 11,000 years). A fault that has exhibited surface displacement during the Pleistocene Epoch (which began about 1.6 million years ago and ended about 11,000 years ago) is defined as potentially active. Earthquake magnitude is measured according to the Richter scale.

Several seismic structures occur in the general vicinity of NOLF IB (Figure 3.1-2), including the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, farther to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones. There are four faults in the general vicinity of NOLF IB. The Crondo Fault, Spanish Night, and the Silver Strand section of the Newport-Inglewood-Rose Canyon fault zone run north to south offshore. The Newport-Inglewood fault zone occurs mostly in Los Angeles and Orange Counties; it has displayed continuing activity, including a 6.3 magnitude earthquake in Long Beach in 1933. The Newport-Inglewood fault zone eventually merges with the Rose Canyon fault zone, about 40 miles northwest of the city of Oceanside. The fourth fault occurs about a mile southeast of NOLF IB; it is



Source: Landiscor 2014; AECOM 2015; NRCS 2015; SanGIS 2015

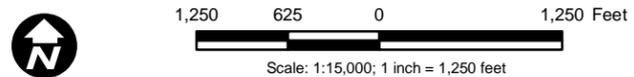
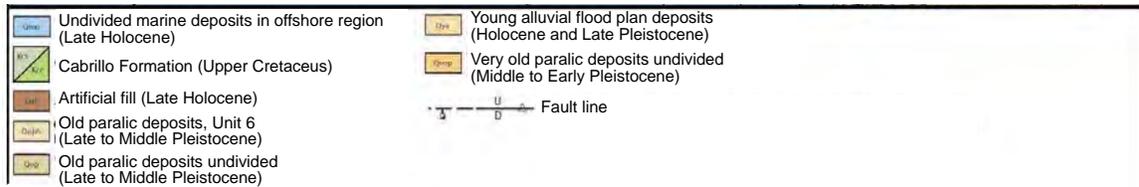
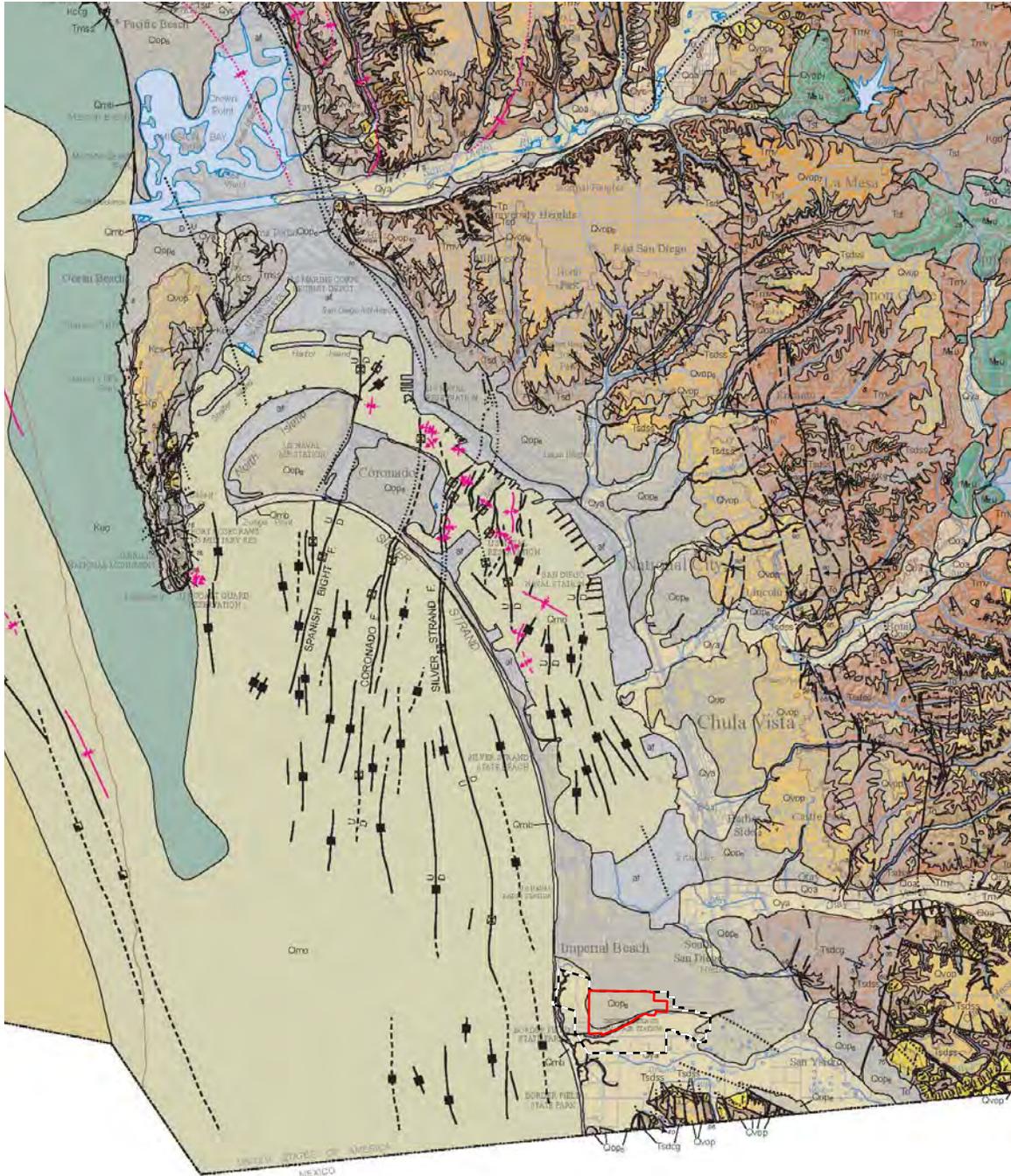


Figure 3.1-1
Soils Map

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Not to Scale

Figure 3.1-2
Geologic Features

unnamed and runs northwest through the TRNERR. The unnamed fault does not occur within the NOLF IB area (U.S. Navy 2013).

Liquefaction

Liquefaction could result from a large earthquake generated on a major regional or locally active fault. Liquefaction is defined as the transformation of soils from a solid to a liquid during ground shaking, thus amplifying destructive effects. Liquefaction generally requires loose, unconsolidated silts or sands at or near the groundwater table. Liquefaction can result in differential settlement of structures, damaged foundations, and downed utility lines. Based on the soil types found, the risk of seismically induced liquefaction on NOLF IB is low.

Tsunami

The threat of flooding by tsunami is a potential hazard because of the proximity of the sites to the ocean. Tsunamis are long, shallow, high-velocity ocean waves that are typically generated by seismic activity. Historically, the highest recorded tsunami in San Diego County was 4.6 feet, following the 1960 Chilean earthquake. An earthquake along the San Clemente Fault, which shows evidence of vertical separation parallel to the coastline, could generate a tsunami along the California coast (Inman and Nordstrom 1973). Tsunamis could also be triggered by seismic activity on the subduction zones of the Pacific Rim. Associated currents could be strong enough to damage structures along the coastline. The elevated eastern portion of NOLF IB, which includes the fenceline site, is outside the tsunami inundation area; however, the western portion of NOLF IB does lie within the inundation area (Figure 3.1-3).

Seiche

Seiches are surges of water in confined water bodies, such as reservoirs or bays. They can be caused by ground shaking during an earthquake. Such events may inundate shorelines and possibly cause some flooding. A review of relevant literature indicates that San Diego Bay is not prone to seiches.

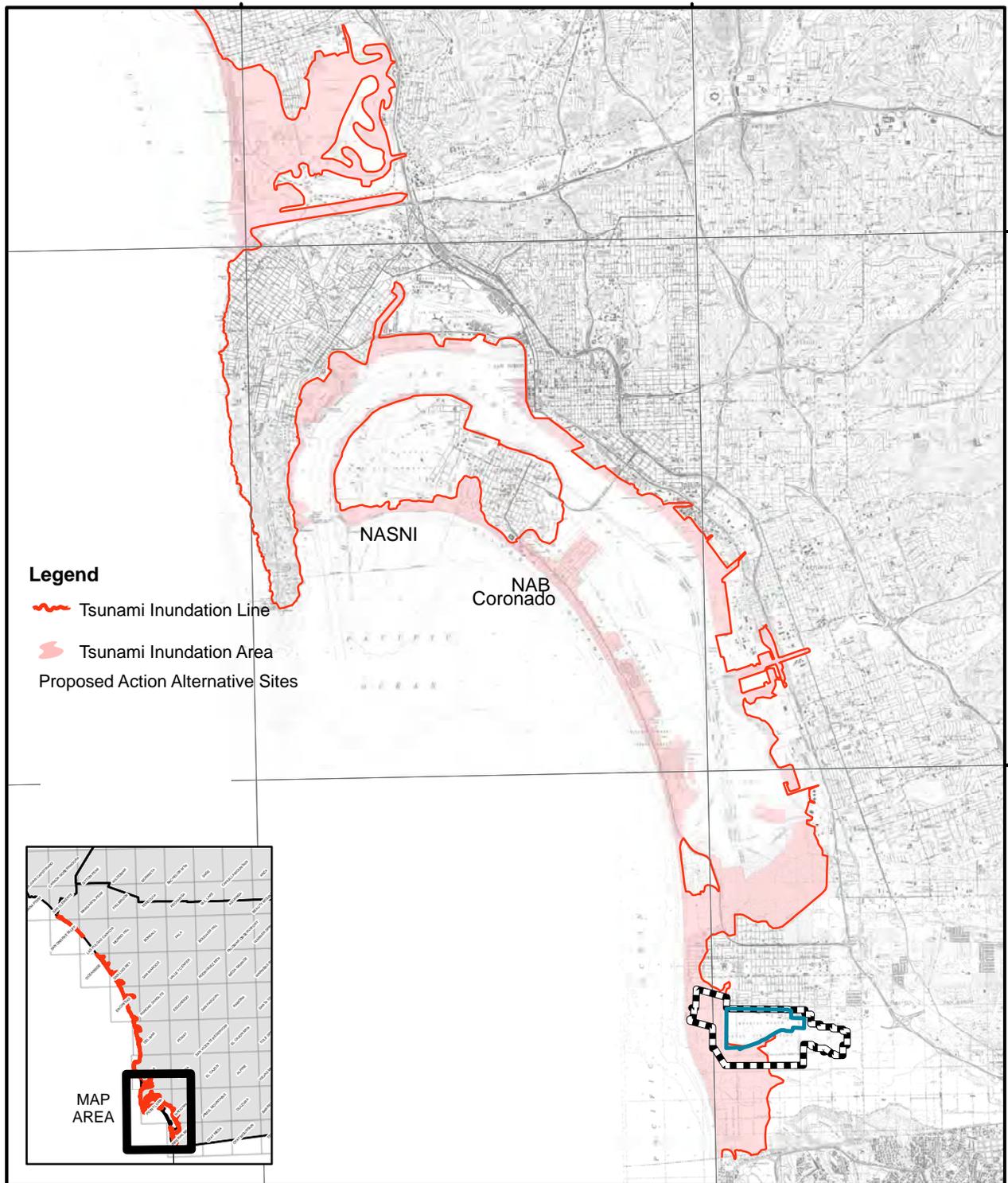
Landslide

Landslides typically occur on steep slopes in soils with high shrink-swell characteristics, such as clay. Because the proposed sites are relatively flat with no major slopes, landslides are not a potential hazard.

3.1.2 Environmental Consequences

3.1.2.1 Approach to Analysis

This section evaluates potential impacts to topography, geology, and soil resources from implementation of the alternatives. In evaluating the potential impacts of the alternatives on geology and soil resources, the analysis considers the protection of unique geological features and minimization of soil erosion.



Not to Scale

Figure 3.1-3
Tsunami Inundation Map

Additionally, geological and soil conditions are analyzed for their ability to affect the proposed alternatives, as geology and soils may have an influence on design and structural engineering.

3.1.2.2 Alternative 1

Impacts

Construction

TOPOGRAPHY

Construction activities associated with perimeter fenceline repair and maintenance of Alternative 1 would be accomplished without substantial changes to the existing landform. The terrain at NOLF IB is relatively level, with no high or depressed areas that would be changed by grading. Changes in topography would be relatively minor involving construction site leveling and would not be significant.

GEOLOGY AND SOILS

The soil types within Alternative 1 are generally HuC of Tf as identified above. Both types are erodible with high shrink/swell potential. Without implementation of appropriate BMPs, construction activities associated with perimeter fenceline repair and maintenance have the potential to temporarily impact geology and soil stability. Any type of soil disturbance would expose soil to erosion from wind and water that could result in failed slopes. Before construction activities, standard soil and geotechnical investigations would be conducted to ensure the stability of the area. Before any site grading commences, an Erosion Control Plan and project-specific Storm Water Pollution Prevention Plan (SWPPP) with standard erosion control measures to reduce impacts resulting from potential erosion would be prepared. With the incorporation of proper construction techniques and erosion control measures, no significant temporary impacts to geological and soil resources would occur during construction of Alternative 1.

GEOLOGICAL HAZARDS

SEISMICITY

Active faults within 60 miles of NOLF IB could result in strong seismically induced ground motion and associated ground shaking. No new structures are proposed with Alternative 1. However, Alternative 1 would be designed and constructed to comply with the seismic design criteria identified in the Uniform Building Code, the Naval Facilities Engineering Command (NAVFAC) P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. Therefore, potential adverse effects from seismic ground shaking associated with this alternative would be avoided or minimized to the extent consistent with current engineering practice. Implementation of Alternative 1 would not have a significant impact on geology and soils.

LIQUEFACTION

The soil within Alternative 1 is a mixture of loam and clay loam and sandy marine sediments (HuC) as well as tidal flats. These soil types are not susceptible to liquefaction and settlement from ground shaking during an earthquake. However, before construction, geotechnical investigations would occur before design and construction of the fenceline, as stated under “Seismicity,” above. Appropriate foundation and footing technology would be employed to avoid or minimize the effects of liquefaction of the new fenceline. Therefore, implementation of Alternative 1 would not have a significant impact on liquefaction.

TSUNAMI

As identified on the Tsunami Inundation Map (Figure 3.1-3), Alternative 1 development would occur outside the tsunami inundation area. However, all structures in low-lying areas adjacent to the Pacific coast could be subject to damage from tsunamis. The proposed fenceline would be designed to the latest seismic safety standards and in keeping with the latest engineering practices. While these features may minimize risk from damage due to a tsunami, no features or combination of features could render the proposed fenceline fully immune to damage by tsunamis. Therefore, implementation of Alternative 1 would not have a significant impact from tsunamis.

SEICHE

The only partially enclosed body of water near NOLF IB is San Diego Bay, which is not susceptible to seiche. Risk of seiche damaging the proposed fenceline is not significant.

LANDSLIDES

No slopes of more than 9 percent are present on NOLF IB. There is no significant risk of landslides affecting Alternative 1.

Operations and Maintenance

Following repair of the existing fence, operations and ongoing maintenance of the fence associated with Alternative 1 would not result in geological or soils impacts compared to existing conditions. The existing fence would be repaired in its current location and would not incorporate new elements such as grading or bank protection, bank erosion would continue to occur in some areas of the fence, mainly along the southern boundary of the project area. Impacts greater than existing conditions would not be expected as the new fence would remain in the existing location. Therefore, no significant impacts to geology and soils would occur during operations and maintenance of Alternative 1.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to geology and soils:

- Comply with the seismic design criteria identified in the Uniform Building Code, the NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California.
- Conduct geotechnical studies for the proposed fenceline construction sites during project design.
- Implement erosion control measures during and after construction.
- Prepare a project-specific NPDES General Construction Permit and a SWPPP.

3.1.2.3 Alternative 2

Impacts

Construction

The same temporary impacts during construction as those listed above for Alternative 1 would be expected. However, instead of repairing or replacing sections of the existing perimeter fence, the entire fence would be replaced, with realignment occurring in some areas. Therefore, temporary impacts of the action on geological conditions, and the effects of potential geological constraints and risks on Alternative 2, would be greater than Alternative 1 as ground disturbance would be greater. Further, revetment construction would occur under Alternative 2 (but not under Alternative 1). While construction of this revetment would not alter the surface elevations of the site, it would change the surface material in that area, permanently influence the path of an existing waterway (as addressed in Section 3.2.2.3), and would provide the beneficial impact of addressing ongoing erosion issues in that area. As described above under Alternative 1, with the employment of appropriate engineering design and construction standards and requirements, Alternative 2 would not have a significant impact on topography, geology, and soils.

Operations and Maintenance

Maintaining the clear recovery zone during ongoing maintenance activities would involve the same impacts as those listed above for Alternative 1. Compliance with applicable regulatory requirements

would minimize the effects of the action on geological conditions, and the effects of potential geological constraints and risks.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to geology and soils:

- Comply with the seismic design criteria identified in the Uniform Building Code, the NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California.
- Conduct geotechnical studies for the proposed fence construction sites during project design.
- Implement erosion control measures during and after construction.
- Prepare a project-specific NPDES General Construction Permit and a SWPPP.
- Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid soil impacts.

3.1.2.4 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Baseline topography, geology, and soils conditions would remain unchanged. Therefore, no impacts to topography, geology, and soils would occur with implementation of the No Action Alternative. Existing soils erosion and erosion related installation damage and security issues would not be addressed.

3.1.3 Unavoidable Adverse Environmental Effects

No unavoidable adverse effects on topography, geology, and soils would occur as a result of implementation of any of the alternatives.

3.1.4 Summary of Effects

Table 3.1-2 summarizes the effects of the two action alternatives and the No Action Alternative.

**Table 3.1-2
Summary of Topography, Geology, and Soils Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance	Changes in topography would be relatively minor involving construction site leveling. NOLF IB possesses highly erodible soils. Strong seismically induced ground motion and associated ground shaking could occur. Adverse effects attributable to liquefaction and settlement are considered minor. Alternative 1 development would mostly occur outside the tsunami inundation area. No significant risk of seiches and landslides would occur. No significant topography, geology and soils impacts would occur.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. • Prepare and comply with geotechnical studies that would be conducted for the fenceline construction site during project design. • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP.
Alternative 2 – Improved Fence Alignment and Structural Improvements	The topography, geology, and soils impacts would be the same as Alternative 1.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the seismic design criteria identified in the Uniform Building Code, NAVFAC P-355 Seismic Design Manual, and the criteria identified in the latest design specifications of the Structural Engineering Association of California. • Prepare and comply with geotechnical studies that would be conducted for the fenceline and revetment construction sites during project design. • Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid soil impacts. • Implement erosion control measures after construction. • Prepare a project-specific NPDES General Construction Permit and a SWPPP.
No Action Alternative	No effects on topography, geology, and soils. Existing erosion and damage issues would not be addressed.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> None</p>

3.2 WATER QUALITY AND HYDROLOGY

Water resources on NOLF IB consist of all surface and receiving waters. Surface waters include rivers, estuaries, wetlands, and drainage channels (swales and ditches). Receiving waters are the surface waters into which drainages flow. The Tijuana River, Tijuana River Estuary, and the Pacific Ocean are the receiving waters for drainages and runoff from the NOLF IB region.

3.2.1 Affected Environment

This section describes water quality and hydrologic resources that are known or expected to occur in areas affected by the Proposed Action. Water quality describes the chemical and physical composition of water as affected by natural conditions and human activities. Hydrology describes water circulation, movement, and distribution, and includes surface water flow, flooding, and groundwater. Floodplains are generally located adjacent to rivers and other bodies of water and in low-lying areas near a water source. A 100-year floodplain is an area that has a 1 percent probability of flooding any given year.

3.2.1.1 Region of Influence

The ROI for water quality and hydrology includes those areas in which construction or operation of the Proposed Action alternatives would potentially affect surface or coastal receiving waters. The ROI for the Proposed Action includes drainages in the Tijuana Valley portion of the Tijuana Hydrologic Unit (HU). The ROI for water quality and hydrology extends from proposed areas of ground disturbance downstream in any affected drainages that flow to the Tijuana River and the Pacific Ocean. The ROI includes surface water (including floodplains) and receiving water resources.

Groundwater in the Tijuana Valley within the Proposed Action limits is excluded from the sources of drinking water in the Water Quality Control Plan for the San Diego Basin (Basin Plan; RWQCB 1994) and is exempted from municipal use designation. Since groundwater quality in the project area is already impacted, groundwater resources are not included in this analysis.

3.2.1.2 Inland Surface Waters

The project area is located in the Tijuana Valley Hydrologic Area (HA) within the Tijuana HU (Figure 3.2-1). The Tijuana HU encompasses approximately 1,750 square miles on either side of the California/Mexico border and discharges to the Tijuana River Estuary and, ultimately, the Pacific Ocean on the U.S. side of the international border. Only 27 percent of the HU is within California; it incorporates portions of the cities of Imperial Beach and San Diego and unincorporated portions of San Diego County. The Tijuana River is the major drainage within the Tijuana Valley HA and the project area. The Tijuana River channel runs along the southern boundary of the project area. National Wildlife Refuge lands as part of the Tijuana Slough National Wildlife Refuge and the Tijuana River National Estuarine Research Reserve are located to the south and west of the project area.

The project area supports jurisdictional resources including regulated tidal and nontidal wetlands, as well as regulated tidal nonwetland waters and regulated nontidal nonwetland waters. A number of man-made drainage swales and ditches also occur within the project area.

Unpaved lands within NOLF IB occur on a coastal terrace that slopes slightly to the southwest. Before development as an airfield, this terrace had a high density of ephemeral pools, a few of which have survived, albeit in degraded condition. The majority of ephemeral pools within the airfield lie within slight topographical depressions with no apparent drainage or subsurface connections to off-site waters, including the Tijuana River and tidal estuary. There are several man-made ditches and swales in the unpaved portions of the airfield, as well as along its outside margins, that were excavated for drainage of upland areas. In the northwest portion of the airfield, shallow ditches convey excess water to three culverts, where it is conveyed west under a paved access road and a pedestrian trail outside of the airfield and discharged into the tidal portion of the adjacent estuary. In the southern portion of the airfield, additional man-made shallow ditches convey excess water to culverts along the southwest fenceline.

Beneficial uses of the Tijuana River identified in the Basin Plan (RWQCB 1994) are as follows:

- Non-Contact Water Recreation (REC-2)
- Preservation of Biological Habitats of Special Significance (BIOL)
- Warm Freshwater Habitat (WARM)
- Wildlife Habitat (WILD)
- Rare, Threatened, and Endangered Species (RARE)

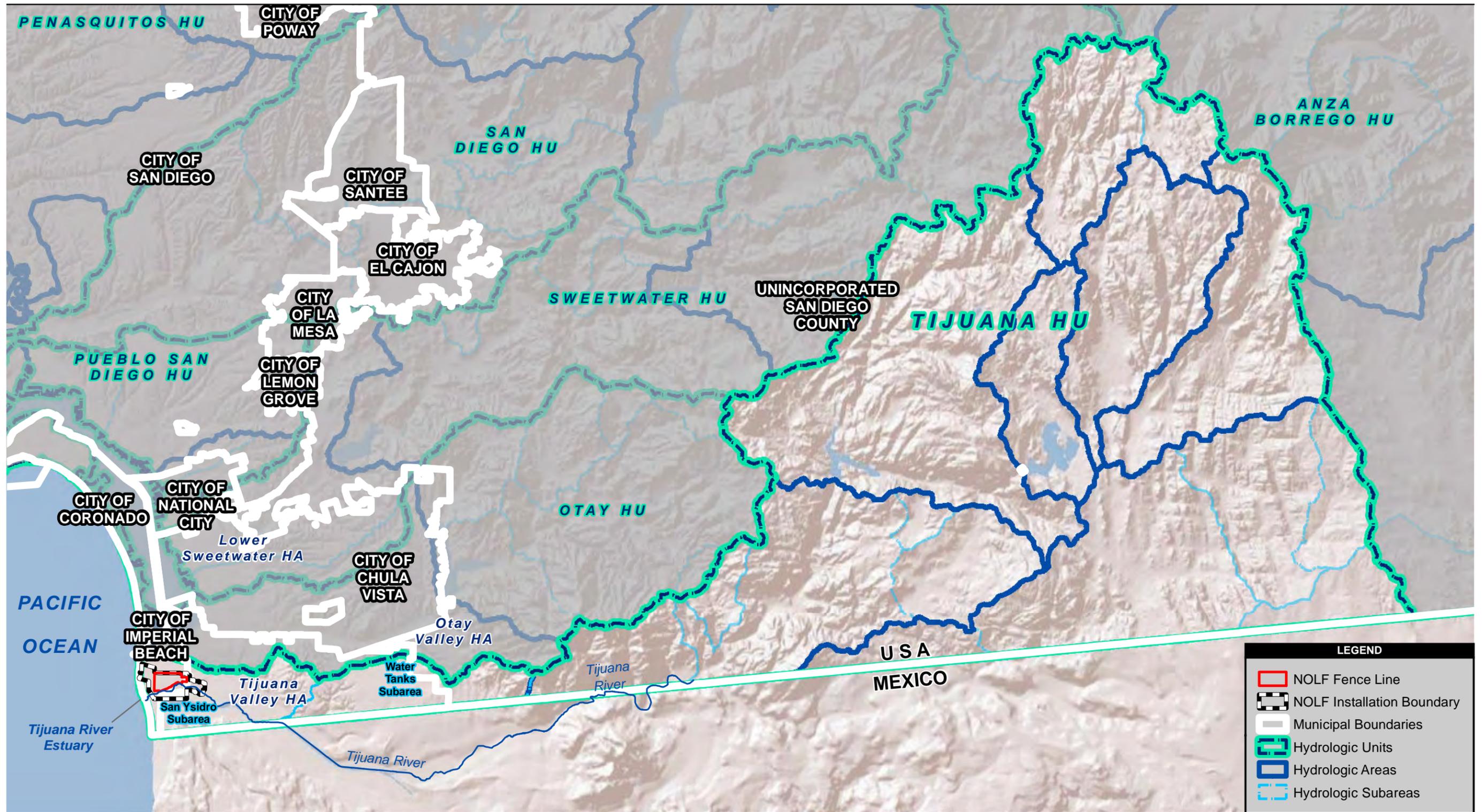
Surface-water quality has been greatly impacted by runoff coming across the border from Mexico. Constituents of concern in the Tijuana Valley HA include coliform bacteria, nutrients, trace metals, pesticides, miscellaneous toxics, low dissolved oxygen, and trash (PCW 2015). Additionally, the Tijuana River has been listed as impaired on the SWRCB CWA Section 303(d) list (SWRCB 2015) for eutrophication, indicator bacteria, low dissolved oxygen, pesticides, phosphorus, sedimentation/siltation, selenium, solids, surfactants (methylene blue active substances), synthetic organics, total nitrogen, toxicity, trace elements, and trash—most likely due to a large variety of sources on the Mexican side of the border, including urban runoff/storm sewers, wastewater, agricultural (animal) sources, septic systems, industrial discharges, erosion/siltation, and unknown point and non-point sources.

3.2.1.3 Coastal Waters

Coastal water resources in the vicinity of the study area include the Tijuana River Estuary and the Pacific Ocean.

Tijuana River Estuary

Estuaries and coastal lagoons are areas at the mouths of streams and rivers where fresh and ocean water commingle. Estuarine waters are considered to extend from a bay or the open ocean to a point upstream



LEGEND

- NOLF Fence Line
- NOLF Installation Boundary
- Municipal Boundaries
- Hydrologic Units
- Hydrologic Areas
- Hydrologic Subareas

Source: Esri 2014; California Interagency Watershed Mapping Committee 2004; USGS 2015; SanGIS 2014

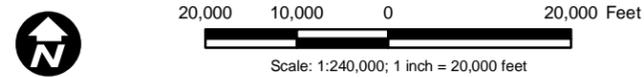


Figure 3.2-1
Watershed Map

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where there is no significant mixing of fresh water and sea water. The Tijuana Estuary, a National Estuarine Sanctuary that supports a variety of threatened and endangered plants and animals, lies at the mouth of the Tijuana River.

Beneficial uses for the Tijuana Estuary are as follows:

- Contact Water Recreation (REC-1)
- Non-Contact Water Recreation (REC-2)
- Commercial and Sport Fishing (COMM)
- Preservation of Biological Habitats of Special Significance (BIOL)
- Estuarine Habitat (EST)
- Wildlife Habitat (WILD)
- Rare, Threatened, and Endangered Species (RARE)
- Marine Habitat (MAR)
- Migration of Aquatic Organisms (MIGR)
- Spawning, Reproduction, and/or Early Development (SPWN)
- Shellfish Harvesting (SHELL)

The Tijuana Estuary is threatened by inflows from the Tijuana River, which has been documented as containing high concentrations of coliform bacteria, sediment, trace metals (copper, lead, zinc, chromium, nickel, and cadmium), polychlorinated biphenyls, and other pollutants (PCW 2015). The Tijuana Estuary is listed as impaired on the SWRCB CWA Section 303(d) list (SWRCB 2015) for eutrophication, indicator bacteria, metals (lead, nickel, and thallium), low dissolved oxygen, pesticides, trash, and turbidity as a result of urban runoff/storm sewers, wastewater, and point and non-point sources.

Pacific Ocean

Beneficial uses of the Pacific Ocean as identified in the Basin Plan (RWQCB 1994) are:

- Industrial Service Supply (IND)
- Navigation (NAV)
- Contact Water Recreation (REC-1)
- Noncontact Water Recreation (REC-2)
- Commercial and Sport Fishing (COMM)
- Preservation of Biological Habitats of Special Significance (BIOL)
- Wildlife Habitat (WILD)
- Rare, Threatened, or Endangered Species (RARE)
- Marine Habitat (MAR)
- Aquaculture (AQUA)
- Migration of Aquatic Organisms (MIGR)

- Spawning, Reproduction, and/or Early Development (SPWN)
- Shellfish Harvesting (SHELL)

The Pacific Ocean shoreline within the Tijuana HU (from 0.75 mile north of the Tijuana River to the United States/Mexico border) has been listed as impaired on the CWA Section 303(d) list (SWRCB 2015) for indicator bacteria (*enterococcus*, total and fecal coliform) due to urban runoff/storm sewers, unknown and natural sources.

3.2.1.4 Floodplains

Floodplains are defined as lowland and relatively flat areas adjoining inland and coastal waters that are subject to a 1 percent or greater chance of flooding in any given year. The potential for flooding in the project area is high. The climate is semiarid and the seasonal precipitation is highly variable in frequency, magnitude, and location. Infrequent large bursts of rain can flood areas unexpectedly. Flooding in NOLF IB and the rest of southern California most frequently occurs during winter storm events from November through April, and occasionally during the summer when a tropical storm makes landfall in the region.

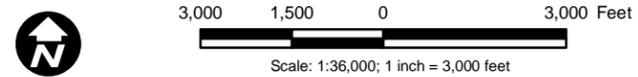
Areas along the Tijuana River are within the Federal Emergency Management Agency (FEMA) 100-year and 500-year floodzones and portions of the 100-year and 500-year floodzones occur on NOLF IB property (Figure 3.2-2). The existing perimeter fence is located outside of the Tijuana River channel and Tijuana Estuary, and is largely above the 100-year floodzone in most areas; however, portions of the fence are within the 100-year floodzone (and the 500-year floodzone) in some areas of the Proposed Action, and periodic flooding is known to occur.

The potential for flooding hazards exists along the southern boundary of the airfield at various locations where banks have been eroded by prior events, mainly the perimeter security road and the southeastern corner of Runway 27 (Merkel & Associates 2014). The course of the Tijuana River has changed in recent decades, moving farther to the north following large flood events in the early 1990s (Merkel & Associates 2012). In addition, the flow direction of the Tijuana River Channel is nearly perpendicular to the bank at the southeastern corner of Runway 27, contributing to erosive scour and flooding potential.

The URS Group hydraulic floodplain study (URS Group 2012) modeled flows of 12.01 feet per second (fps) emerging from a narrow channel between agricultural fields to the east of the airfield. Immediately downstream, the river bends in an approximately 860-foot-radius clockwise flow to the north toward the east end of Runway 27. As the river channel approaches the airfield fill slope, it enters a second counterclockwise radius, turning the channel away from the airfield bank at an approximately 470-foot radius with velocities of 7.22 fps. The combination of erosive velocities and the channel bends increases the potential for channel migration and impinging flows to scour the airfield near Runway 27 (Merkel & Associates 2014).



Source: Esri 2014; FEMA 2015; SanGIS 2014



**Figure 3.2-2
Floodzone Map**

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3.2.2 Environmental Consequences

3.2.2.1 Approach to Analysis

Water quality and hydrology resources could be affected where components of the Proposed Action alternatives cross drainages, encounter floodplains, or fail to properly control runoff from the site development during or after construction. Surface water quality is therefore evaluated with respect to possible releases of pollutants and erosion-induced sedimentation resulting from the Proposed Action. The Proposed Action is also analyzed to determine whether pollutants found in storm water runoff from construction activities and operations (i.e., post-construction) would impact surface water quality or result in increased flooding potential.

3.2.2.2 Alternative 1

Impacts

Construction

INLAND SURFACE WATERS AND COASTAL WATERS

Without implementation of appropriate BMPs, construction activities associated with perimeter fence repair and maintenance have the potential to temporarily impact water quality through the release of pollutants, such as sediment, concrete, soil stabilization residues, oil and grease, and trash and debris. Any type of soil disturbance would expose soil to erosion from wind and water that could result in sedimentation to receiving waters (i.e., Tijuana River, Tijuana River Estuary, and Pacific Ocean).

Construction activities associated with Alternative 1 would be subject to applicable storm water regulatory requirements and standards to avoid and/or minimize potential impacts of soil erosion, sediment transport, and storm water runoff pollution to surface waters during construction. Construction BMPs that reduce erosion and subsequent sediment transport (e.g., silt fence, fiber rolls, sandbag barrier, and gravel bag berm) would be implemented during construction activities in compliance with the Construction General Permit, Order 2009-0009-DWQ (as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ; SWRCB 2009). A project-specific SWPPP would be developed and implemented, which would identify the sources of pollutants that may affect the quality of storm water and would include construction site BMPs to control and minimize the identified pollutants (e.g., sediment/silt) in runoff. Additionally, the SWPPP would be required to assess the sediment and receiving water risk associated with the Proposed Action relative to the water quality sensitivities of the Tijuana River and Tijuana River Estuary. Since the site would discharge to 303(d)-listed water bodies, the SWPPP would need to prescribe BMPs effective in managing any 303(d) pollutant of concern that has the potential to be in storm water runoff from the area affected such that no further impairments are caused by the Proposed Action.

Given the proximity to sea level, the SWPPP developed for the Proposed Action would need to consider weather and water elevation concerns, primarily during the winter season. Scheduling of construction activities outside the wet season (or at least ground disturbance for fence pole installation) would need to be coordinated carefully to avoid runoff and potential flooding impacts, particularly in areas immediately adjacent to the banks of watercourses.

Compliance with applicable regulatory requirements would serve to minimize pollutants in runoff that would otherwise impact surface water or coastal water quality. Therefore, no significant temporary impacts to water resources would occur during construction of Alternative 1.

FLOODPLAINS

Given the small footprint and the porosity of the new perimeter fenceline under the Proposed Action, construction activities would not be expected to impact the floodplain of the Tijuana River. The existing fence would be repaired in its current location and would have no impacts to hydrology during construction activities. Therefore, no significant temporary impacts to floodplains would occur during construction of Alternative 1.

Operations and Maintenance

INLAND SURFACE WATERS AND COASTAL WATERS

Ongoing maintenance activities to maintain the fence maintenance corridor would have the potential to impact receiving water quality through the release of pollutants during maintenance activities. However, mandatory post-construction practices would be implemented and maintained to substantially reduce storm water pollution and prevent substantial water quality degradation as required by applicable regulations.

Maintenance activities associated with Alternative 1 would be subject to applicable storm water regulatory requirements and standards to avoid and/or minimize potential water quality impacts to surface and coastal waters during routine maintenance. BMP requirements would be implemented during construction, continuing through the post-construction operational phase in compliance with the SWPPP (Construction General Permit Section XIII). Erosion and sediment controls would be implemented to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff that are reasonably foreseeable after all construction phases have been completed at the site.

Compliance with applicable regulatory requirements would minimize pollutants in runoff and their potential impacts receiving water quality. Therefore, no significant impacts to water resources would occur during operations and maintenance of Alternative 1.

FLOODPLAINS

Following repair of the existing fence, operations and ongoing maintenance of the fence associated with Alternative 1 would not result in floodplain impacts compared to existing conditions. The existing fence would be repaired in its current location and would not encroach upon the floodplain compared to existing conditions. However, since Alternative 1 would not incorporate new elements such as grading or bank protection, bank erosion and flooding potential would continue to occur in some areas of the fenceline, mainly along the southern boundary of the project area. Impacts would not be expected to be greater than existing conditions as the new fence would remain in the existing location. Therefore, no significant impacts to floodplains would occur during operations and maintenance of Alternative 1.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to hydrology and water quality:

- Comply with Order 2009-0009-DWQ (Construction General Permit) during and after construction, with specific attention to the following during and after construction:
 - Maintaining compliance with all aspects of the project-specific SWPPP.
 - Implementing sediment and erosion control measures to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants (particularly 303(d)-listed impairments) in site runoff.

3.2.2.3 Alternative 2

Impacts

Construction

INLAND SURFACE WATERS AND COASTAL WATERS

The same temporary impacts during construction as those listed above for Alternative 1 would be expected. However, instead of repairing or replacing sections of the existing perimeter fence, the entire fence would be replaced, with realignment occurring in some areas. Therefore, temporary impacts would be greater than Alternative 1 as ground disturbance would be greater. As described above under

Alternative 1, compliance with applicable regulatory requirements would serve to minimize pollutants in runoff and avoid impacts to receiving water quality. Therefore, no significant temporary impacts to water resources would occur during construction of Alternative 2.

FLOODPLAINS

Similar to Alternative 1, construction activities associated with Alternative 2 would not be expected to result in floodplain impacts. The existing alignment of the perimeter fence would be retained in most locations, with the exception of the Former Small Arms Firing Range area and the southeastern corner of the fenceline (near Runway 27). Impacts to hydrology would not occur during construction activities, particularly since the fenceline in these areas would be placed farther away from the active watercourse. Therefore, no significant temporary impacts to floodplains would occur during construction of Alternative 2.

Operations and Maintenance

INLAND SURFACE WATERS AND COASTAL WATERS

Maintaining the clear recovery zone during ongoing maintenance activities would involve the same impacts as those listed above for Alternative 1. Compliance with applicable regulatory requirements would minimize pollutants in runoff that could potentially impact receiving water quality. Therefore, no significant impacts to water resources would occur during operations and maintenance of Alternative 2.

FLOODPLAINS

Following fence replacement and realignment, operations and ongoing maintenance activities associated with Alternative 2 would not be expected to result in floodplain impacts. Alternative 2 has been designed to prevent further encroachment into the floodplain by realigning the existing fenceline in some areas. This alternative would also provide slope protection and erosion control improvements. The existing fenceline alignment would be maintained in most areas, but would retreat away from the floodplain in other areas (i.e., the Former Small Arms Firing Range area and the southeastern corner of the fenceline; see Figure 2-2). In some areas, this would involve the elimination of fence faces that are oriented perpendicular or nearly perpendicular to river flows. In other areas, this would involve a straightening of the fence alignment to move the fenceline away from the active flow of the river. Fence realignment would reduce the risk of debris accumulation or erosive flows at the fenceline. In addition, the realignment of the fence would also reduce the risk of future fence damage resulting from bank erosion. Fence realignment would not alter or impact the natural hydrology of the Tijuana River (Merkel & Associates 2014).

Additionally, slope protection (i.e., rock revetment) along Runway 27 at the southeastern corner of the fenceline would be constructed in a manner that would not push the existing bank toward the river below the 100-year floodplain water surface elevation. Bank stabilization would be configured to conform to the

existing slopes. The revetment would be developed within the envelope of space occupied by the current bank where the revetment would extend below the 100-year floodplain elevation (the existing bank would be cut back an adequate amount to accommodate placement of the new revetment). The slope would not encroach into the floodplain more than the existing bank and thus would not alter the hydrology of the river where the revetment is placed.

By realigning the existing fenceline and maintaining proper guidelines for slope configuration and bank stabilization, potential impacts to floodplains would be avoided. The natural hydrology of the Tijuana River would not be altered. Therefore, no significant impacts to floodplains would occur during operations and maintenance of Alternative 2.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to hydrology and water quality:

- Comply with Order 2009-0009-DWQ (Construction General Permit) during and after construction, with specific attention to the following during and after construction:
 - Maintaining compliance with all aspects of the project-specific SWPPP.
 - Implementing sediment and erosion control measures to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants (particularly 303(d)-listed impairments) in site runoff.
- Realign fenceline out of floodplain.
- Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid impacts to the floodplain.

3.2.2.4 No Action Alternative

Impacts

Under the No Action Alternative, the Proposed Action would not occur. Baseline water resources conditions would remain unchanged. Therefore, no impacts to water quality or hydrology would occur with implementation of the No Action Alternative. Existing water erosion and flood impingement issues would not be addressed.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No avoidance and minimization measures are proposed.

3.2.3 Unavoidable Adverse Environmental Effects

No unavoidable adverse effects on hydrology and water quality would occur as a result of implementation of any of the alternatives.

3.2.4 Summary of Effects

Table 3.2-1 summarizes the effects of the two action alternatives and the No Action Alternative.

**Table 3.2-1
Summary of Hydrology and Water Quality Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance	Construction- and operation-related impacts to receiving waters would be minimized/avoided with implementation of BMPs. No significant impacts to floodplains would occur. No significant hydrology or water quality impacts would occur.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. • Implement sediment and erosion control measures during and after construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff.
Alternative 2 – Improved Fence Alignment and Structural Improvements	Temporary construction-related impacts would be greater than Alternative 1. Realignment of fenceline and bank stabilization would avoid floodplain impacts. No significant hydrology or water quality impacts would occur.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Comply with the Construction General Permit Order 2009-0009-DWQ during and after construction. • Develop and implement a project-specific SWPPP during construction. • Implement sediment and erosion control measures during and after construction to reduce the amount of soil disturbance, minimize erosion and sediment transport into receiving waters, and avoid pollutants in site runoff. • Realign fenceline out of floodplain.

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
		<ul style="list-style-type: none">• Incorporate slope stabilization (i.e., rock revetment) to minimize scour and bank erosion and avoid impacts to the floodplain.
No Action Alternative	No effects on hydrology and water quality.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> None

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3.3 BIOLOGICAL RESOURCES

This section describes the native and naturalized plants and animals that occur in the terrestrial and wetland habitats within or adjacent to the Proposed Action Area and thus may be directly or indirectly affected by the Proposed Action. Throughout the resource descriptions in this section, discussions of these resources are organized as follows: (1) plant communities and other cover types, (2) waters of the U.S., (3) federally listed plants, (4) nonfederally listed rare plants, (5) federally listed wildlife, (6) nonfederally listed rare wildlife, and (7) wildlife corridors.

3.3.1 Region of Influence

As outlined in Chapter 1, for the purposes of analysis within this EA, the biological resources study area was limited to an approximately 500-foot buffer extending 250 feet on either side of the western and southern portions of the existing perimeter fenceline. It is anticipated that potential impacts to listed species would occur within this area. The biological resources study area includes approximately 145.3 acres located along the western and southern segments the fenceline (Segments 1 through 5) and includes the potential zone of influence for slope stabilization and erosion control components of the Proposed Action as well. The northern and eastern portions of the existing perimeter fenceline (Segment 6) occur entirely within and adjacent to developed cover type with no suitable habitat to support federally listed species. Although the northern and eastern portions of the Proposed Action Area are included in the EA, due to their lack of suitable habitat for any listed species, they are not included within the biological resources study area. Within the Proposed Action Area, the ROI for most biological resources would be confined to the construction limit boundaries for the fence replacement itself.

Information about biological resources in this section is based on existing data and project-specific biological surveys described in this EA. In addition to the project-specific surveys conducted in support of the Biological Assessment for the analysis of the Proposed Action (Appendix B), available biological data were reviewed and analyzed. The following sources were reviewed to obtain relevant biological data previously collected within the Proposed Action Area, including project-specific surveys:

- *Alternatives Analysis for Slope Protection and Fenceline Replacement at NOLF IB – Conceptual Fenceline Replacement 100% Design* (Merkel & Associates 2014) (Appendix A)
- *2012/2013 Naval Outlying Landing Field Imperial Beach Perimeter Fence Replacement Project Listed Branchiopod Species 90-day Report of Protocol Wet Season Surveys, Naval Base Coronado, San Diego County, California* (AECOM 2013) (included in Appendix B)
- *Results of Analyses of Soil Samples Collected from 2013 Naval Outlying Landing Field Imperial Beach Perimeter Fence Replacement Project Dry Season Shrimp Surveys, Naval Base Coronado, San Diego County, California* (AECOM 2014) (included in Appendix B)
- *Dry Season Sampling for Listed Vernal Pool Branchiopods Naval Outlying Landing Field Imperial Beach, County of San Diego, California* (AECOM 2012)

- *Light-footed Clapper Rail Survey, Navy Outlying Landing Field Imperial Beach, Perimeter Fence Repair Project, San Diego, California* (Davenport Biological Services 2013) (included in Appendix B)
- *Biological Resources Surveys 2009-2010, Naval Base Coronado, Naval Outlying Field, Imperial Beach, California* (U.S. Navy 2011a)
- *Least Bell's Vireo and Southwestern Willow Flycatcher Surveys at Naval Outlying Landing Field, Imperial Beach* (U.S. Navy 2012) (included in Appendix B)
- *Final Integrated Natural Resources Management Plan* (U.S. Navy 2013)

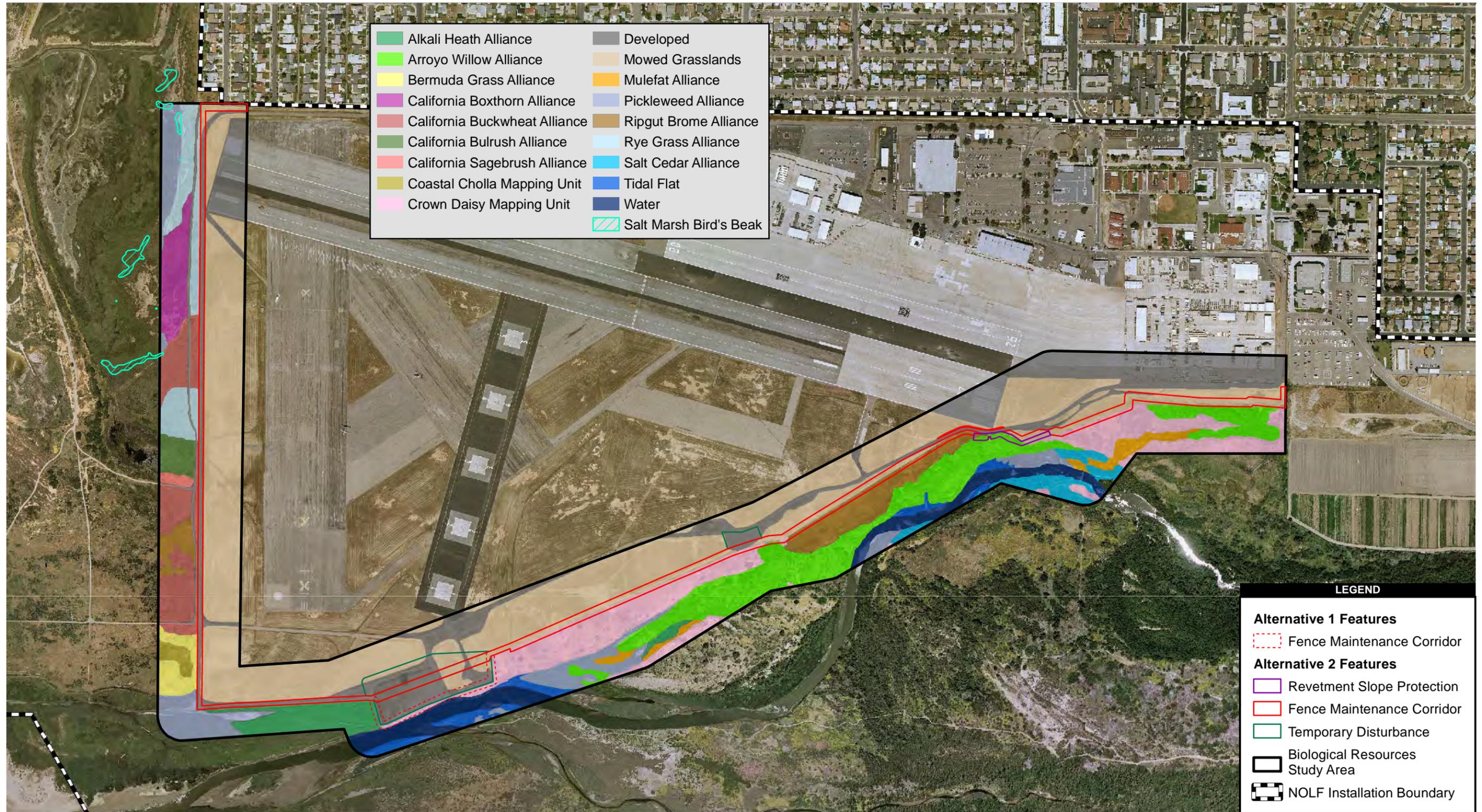
The project-specific surveys are described in the subsections below where relevant to each resource type that was evaluated. Existing data also include geographic information system (GIS) data from the Navy, which provided information on the status, distribution, and known locations of sensitive biological resources within the Proposed Action Area. Additional GIS data on soils, listed species' critical habitat, and other pertinent information were gathered to analyze potential impacts from the Proposed Action.

3.3.2 Affected Environment

3.3.2.1 Plant Communities and Other Cover Types

The NOLF IB Biological Resources Surveys Report (U.S. Navy 2011a) contained data and a plant community classification that followed Sawyer et al. 2009. Existing plant community maps were used to assist biologists who performed field surveys (U.S. Navy 2011a). Project botanists verified the accuracy of the existing plant community data by walking meandering transects and from selected vantage points that allowed an expansive view of the Proposed Action Area. Field review of the existing plant data was conducted on March 26 and May 7, 2013.

Within the Proposed Action Area, 18 plant communities or cover types occur, including seven riparian and wetland communities, eight upland communities, and three other cover types. A summary of the acreage of these plant communities and other cover types within the Proposed Action Area is provided in Table 3.3-1. The plant communities and other cover types, along with their potential to support federally listed species, are summarized below. The plant communities and cover types within the NOLF IB Proposed Action Area are displayed in Figure 3.3-1. A combined floral list of all plant species observed and recorded during plant community mapping and rare plant surveys throughout the Proposed Action Area is included in Appendix B.



Source: Landiscor 2014; AECOM 2015; Merkel 2011

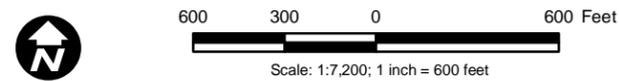


Figure 3.3-1
Plant Communities and Cover Types

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**Table 3.3-1
Plant Communities and Other Cover Types within the Proposed Action Area**

Plant Communities and Other Cover Types	Acreage
Riparian and Wetlands	
Pickleweed Alliance (<i>Salicornia pacifica</i> Alliance)	7.9
Alkali Heath Alliance (<i>Frankenia salina</i> Alliance)	3.8
California Bulrush Alliance (<i>Schoenoplectus californicus</i> Alliance)	1.2
Mulefat Alliance (<i>Baccharis salicifolia</i> Alliance)	1.7
Salt Cedar Alliance (<i>Tamarix</i> Alliance)	2.3
Arroyo Willow Alliance (<i>Salix lasiolepis</i> Alliance)	13.2
Tidal Flats	2.3
Uplands	
California Buckwheat Alliance (<i>Eriogonum fasciculatum</i> Alliance)	5.7
California Boxtorn Alliance (<i>Lycium californicum</i> Alliance)	2.6
California Sagebrush Alliance (<i>Artemisia californica</i> Alliance)	0.3
Coastal Cholla Mapping Unit (<i>Cylindropuntia prolifera</i> Mapping Unit)	0.6
Ripgut Brome Alliance (<i>Bromus diandrus</i> Alliance)	5.2
Rye Grass Alliance (<i>Lolium perenne</i> Alliance)	4.2
Bermuda Grass Alliance (<i>Cynodon dactylon</i> Alliance)	1.5
Crown Daisy Mapping Unit (<i>Glebionis coronaria</i> Mapping Unit)	14.1
Other Cover Types	
Mowed Grasslands	49.1
Developed	23.8
Water	5.8
Total	145.3

Riparian and Wetland Communities

Pickleweed Alliance (Salicornia pacifica Alliance)

Pickleweed (*Salicornia pacifica*) salt marsh and cordgrass (*Spartina foliosa*) are the primary plants within this alliance. Other commonly occurring species include spreading alkali-weed (*Cressa truxillensis*), alkali heath (*Frankenia salina*), arrow grass (*Triglochin maritima*), and salty susan (*Jaumea carnosa*). This community type is found predominantly on the outside of the southwest corner of the fence.

This plant community is year-round habitat for Light-footed Ridgway's Rail (*Rallus obsoletus levipes*). This species breeds and remains in this plant community throughout the year.

Alkali Heath Alliance (Frankenia salina Alliance)

Transitioning into upland grasslands and scrubs, this alliance is dominated by alkali heath at the upper levels of salt marsh habitat above the pickleweed. Pickleweed remains common in these areas, along with a variety of grasses. Several occurrences of southwestern spiny rush (*Juncus acutus*) can be found among the alkali heath. Alkali heath alliance is found in the Proposed Action Area mostly outside of the southwestern corner of NOLF IB.

This plant community is year-round habitat for Light-footed Ridgway's Rail. This species occurs within this plant community and other adjacent plant communities throughout the year.

California Bulrush Alliance (Schoenoplectus californicus Alliance)

Freshwater marsh dominated by California bulrush (*Schoenoplectus californicus*) is located adjacent to the western end of the airfield. It grows in an area near a drainage culvert that receives runoff from the hard surfaces of the site.

This plant community is important year-round habitat for Light-footed Ridgway's Rail. This species occurs in this plant community and adjacent plant communities throughout the year.

Mulefat Alliance (Baccharis salicifolia Alliance)

This riparian alliance, dominated by mulefat (*Baccharis salicifolia*), occurs within the south and southeastern portions of the Proposed Action Area. Willows, including arroyo willow or sandbar willow (or both), may be present at very low frequencies. Scattered salt cedar (*Tamarix* species) also occurs in many of the *Baccharis salicifolia* association areas, as well as patches of giant reed (*Arundo donax*), and upland weed species such as hottentot fig (*Carpobrotus* sp.) and crown daisy (*Glebionis coronaria*).

Salt Cedar Alliance (Tamarix Alliance)

Scattered individuals and small clusters of salt cedar (*Tamarix parviflora*) occur throughout the Proposed Action Area outside of the southern portion of NOLF IB. In some places, salt cedars grow in dense, stands. These thickets occur south of the fenceline within the Proposed Action Area.

Arroyo Willow Alliance (Salix lasiolepis Alliance)

This alliance occurs on the southern boundary of the Proposed Action Area. Within the alliance, arroyo willow is the sole dominant species of willow. Other species, such as black willow (*Salix gooddingii*), shining willow (*Salix lucida*), and Fremont cottonwood (*Populus fremontii*), may be present as occasional trees. The understory is generally sparse and composed primarily of mulefat, tarragon (*Artemisia dracunculus*), and Douglas mugwort (*Artemisia douglasiana*).

A portion of this plant community is considered suitable breeding habitat for the Least Bell's Vireo.

Tidal Flats

These are flat salty lands with periodic inundation. They may exist on the edges of the tidal channels. They are predominantly unvegetated as a result of periodic inundation and high salt content of the surface and soil. This community is occasionally used by Light-footed Ridgway's Rail as foraging habitat.

Upland Alliances

Following are descriptions of the upland shrub alliances mapped at NOLF IB by Tierra Data (U.S. Navy 2011a). The shrub understory is often composed of a variety of nonnative grasses (e.g. *Bromus*, *Avena*, *Vulpia*, *Hordeum*, *Lolium*).

California Buckwheat Alliance (Eriogonum fasciculatum Alliance)

The *Eriogonum fasciculatum* alliance occurs on the western end of the Proposed Action Area. Total shrub cover varies greatly (between 35 percent and 85 percent) and, although buckwheat is the dominant shrub species present, other species occur at varying densities, including California sagebrush (*Artemisia californica*), boxthorn (*Lycium californica*), broom Baccharis (*Baccharis sarothroides*), coastal goldenbush (*Isocoma menziesii* var. *vernonioides*), and laurel sumac (*Malosma laurina*). Also abundant in many of these areas is coast cholla (*Cylindropuntia prolifera*).

California Boxthorn Alliance (Lycium californicum Alliance)

Lycium californicum is the dominant shrub species on land on the west side of the fenceline within the Proposed Action Area. Total shrub cover ranges from 30 percent to 75 percent. Also present at low densities are buckwheat, sagebrush, and coast cholla.

California Sagebrush Alliance (Artemisia californica Alliance)

An area located on the western portion of the Proposed Action Area was mapped with California sagebrush as the sole dominant species with about 25 percent cover. Other shrub species included coastal goldenbush and California buckwheat. Nonnative forbs and grasses covered approximately 35 percent of the polygon, composed of crown daisy (15 percent), fennel (5 percent), and brome species (20 percent).

Coastal Cholla Mapping Unit (Cylindropuntia prolifera Mapping Unit)

This is a mapping unit that has not been identified in the California Manual of Vegetation. This unit occurs on the southwestern corner of NOLF IB within the Proposed Action Area. Here, coast cholla occurs as the sole dominant overstory species with an understory of nonnative annual grasses.

Ripgut Brome Alliance (Bromus diandrus Alliance)

Bromus diandrus semi-natural stands are a nonnative grassland vegetation that occurs along the southern boundary of the Proposed Action Area. Other brome species and mostly nonnative forb species are also prominent in this type.

Rye Grass Alliance (Lolium perenne Alliance)

This vegetation has been identified on the west side of the Proposed Action Area. This vegetation is dominated by *Lolium perenne* but other brome species, slender wild oats (*Avena barbata*), Bermuda grass (*Cynodon dactylon*), and an assortment of native and nonnative forb species also occur at very low density. A few scattered shrubs, such as buckwheat and boxthorn, also occur here.

Bermuda Grass Alliance (Cynodon dactylon Alliance)

This mapping unit occurs west of the site within the Proposed Action Area. Bermuda grass (*Cynodon dactylon*) has the highest percent cover among the grasses but it may not be readily visible at certain times of the year. It tends to be a rather low-growing plant, which spreads out beneath taller bromes, rye grass, and wild oats, which are also quite prominent in this area.

Crown Daisy Mapping Unit (Glebionis coronaria Mapping Unit)

Crown daisy (*Glebionis coronaria*) occurs in vast areas of coastal San Diego County and in the Tijuana River Valley. It occurs along the southern portion of the Proposed Action Area. *Glebionis* is a Cal-IPC weed species, growing at times in nearly monospecific stands. In addition to *Glebionis*, many other weedy species are present, often at very high cover values bordering on codominant or possibly dominant status. Some of the most prominent weed species are black mustard (*Brassica nigra*), shortpod mustard (*Hirschfeldia incana*), pepperweed (*Lepidium campestre*), wild radish (*Raphanus sativa*), and Russian thistle (*Salsola tragus*). The amount of cover of this mapping unit varies widely between seasons due to seasonal differences in rainfall.

Other Cover Types

Mowed Grasslands

The interior of the fence area is a regularly mowed area around the landing strips and paved areas. These grasslands are mowed to a height of a few inches to manage bird/animal airstrike hazard (BASH) risks to aircraft. They are composed primarily of brome species but do include some low forbs such as goldfields (*Lasthenia californica*).

Developed

Developed areas are areas that are built upon or have the remains of former buildings, roads, or other structures. The small arms range, dirt access roads, and dirt trails within the TSNWR were classified as developed.

Water

Open water within the Tijuana River flows past the southern fenceline. This cover type is tidally influenced and tide levels vary greatly along the southern fenceline. The Tijuana River supports foraging habitat for the Light-footed Ridgway's Rails forage along the slopes of the Tijuana River during low tide.

3.3.2.2 Waters of the U.S.

Formal wetland delineations were conducted by Merkel & Associates (2012) for the U.S. Navy in support of the Proposed Action. Surveys included the routine on-site determination methods noted in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to*

the Corps of Engineers Wetland Delineation Manual: Arid West Region (Environmental Laboratory 2008). In addition, the delineation was expanded to provide a full review of jurisdictional regulatory authority over wetlands and nonwetland waters of the U.S./state to define the physical boundaries of regulation by USACE and the RWQCB (Merkel & Associates 2012).

The USACE routine on-site determination methods require the presence of three parameters to define an area as a wetland (e.g., hydrophytic vegetation, hydric soils, and wetland hydrology); however, procedural deviations are required and allowed for under the delineation methods where normal circumstances do not exist [i.e., some wetland indicators of one or more of the parameters can be periodically lacking due to normal seasonal or annual variations in environmental conditions (i.e., problem areas) or effects of recent human activities or natural events (i.e., atypical situations)] (Merkel & Associates 2012).

The limits of jurisdiction in nontidal waters of the U.S. extend to the limits of the wetlands or adjacent wetlands. Nontidal waters of the U.S. that lack one or two of the wetland parameters may still be jurisdictional under the USACE as nonwetland waters of the U.S. In the absence of wetlands or adjacent wetlands, the limits of jurisdiction in nontidal waters of the U.S. extend to the ordinary high water mark (OHWM). Under Section 404, the USACE limits of jurisdiction in tidal waters of the U.S. extend to the OHWM plus any adjacent wetlands. In the Tijuana Estuary, the OHWM is the Highest High Tide, or +8.22 feet North American Vertical Datum of 1988 (NAVD88) (Merkel & Associates 2012).

Portions of the study area at or below an elevation of the highest high tide that also contained wetland vegetation and hydric soil indicators were classified as jurisdictional tidal wetlands. Portions of the study area at or below the highest high tide that did not contain wetland vegetation and/or hydric soils were classified as jurisdictional tidal nonwetland waters. The jurisdictional wetland delineation was conducted on June 26, June 29, and July 17, 2012 (Merkel & Associates 2012). For a more detailed description of the methodology used, please refer to the Jurisdictional Wetland Delineation Report (JWDR) in Appendix C.

Vegetation types within the JWDR were classified according to the Holland (1986) code classification system as modified by Oberbauer et al. (2008). As mentioned in Section 3.3.2.1 above, in 2013 AECOM botanists field-verified and updated existing vegetation maps provided by the U.S. Navy (2001) to support this EA. Vegetation classification for that effort and within this section of this EA follows the alliance classification scheme according to *A Manual of California Vegetation* (Sawyer et al. 2009), which differs from the Holland system. For consistency in the use of vegetation nomenclature within this EA, the extent of jurisdictional waters of the U.S. (based on the jurisdictional delineation conducted in 2012) was extrapolated on the updated 2013 vegetation maps, by overlaying the 2012 GIS layers of jurisdictional waters of the U.S. onto the 2013 vegetation maps field-verified by AECOM. Table 3.3-2 below provides a cross-reference between the vegetation classification system used in this EA and the system used by Merkel & Associates (2012). For consistency of analysis, the remainder of this section of the EA will follow the nomenclature of Sawyer et al. (2009), but footnotes in relevant tables a cross-reference to the corresponding nomenclature of Oberbauer et al. (2008). For a more detailed description of the methodology used, please refer to the JWDR in Appendix C.

**Table 3.3-2
Vegetation Classification Cross-Reference between NOLF IB EA and Merkel & Associates
for Plant Communities and Other Cover Types within the Proposed Action Area**

Vegetation Classification in NOLF IB EA, which follows Sawyer et al (2009).	Vegetation Classification in Alternatives Analysis for Slope Protection and Fenceline Replacement by Merkel & Associates (2012), which follows Oberbauer et al. (2008).
Coastal and Marshland Alliances	
Alkali Heath Alliance	Southern Coastal Salt Marsh
California Bulrush Alliance	Coastal Brackish Marsh
Pickleweed Alliance	Southern Coastal Salt Marsh
Riparian Alliances	
Mulefat Alliance	Southern Willow Scrub
Arroyo Willow Alliance	Southern Riparian Woodland/Non-Native Riparian Woodland in part
Salt Cedar Alliance	Tamarisk Scrub
Upland Herbaceous Alliances	
Ripgut Brome Alliance	Non-Native Grassland
Bermuda Grass Alliance	Non-Native Grassland/Salt Grass Grassland as mapped
Rye Grass Alliance	Non-Native Grassland and Herbaceous wetland
Crowndaisy Mapping Unit	Non-Native Grassland/ Diegan Coastal Scrub
Upland Shrub Alliances	
California Buckwheat Alliance	Maritime Succulent Scrub/Diegan Coastal Sage Scrub
California Sagebrush Alliance	Maritime Succulent Scrub/Diegan Coastal Sage Scrub
California Boxthorn Alliance	Maritime Succulent Scrub
Coastal Cholla Mapping Unit	Maritime Succulent Scrub
Other Cover Types	
Mowed grasslands	Non-Native Grassland
Tidal flats	Southern Coastal Salt Marsh
Water	Open Water
Developed areas	Urban/Developed

Most of the ephemeral pools within the study area were unvegetated and/or disconnected from navigable waters. All jurisdictional resources within the study area were determined to have a high functional value due to their position in the watershed, connectivity with the adjacent TSNWR and the TRNERR, the presence of numerous sensitive plant and wildlife species, and the important estuarine functions of sediment/toxicant retention, nutrient transformation/exportation, and groundwater recharge (Merkel & Associates 2012).

Below is a description of the extent of jurisdictional waters of the U.S. within the study area.

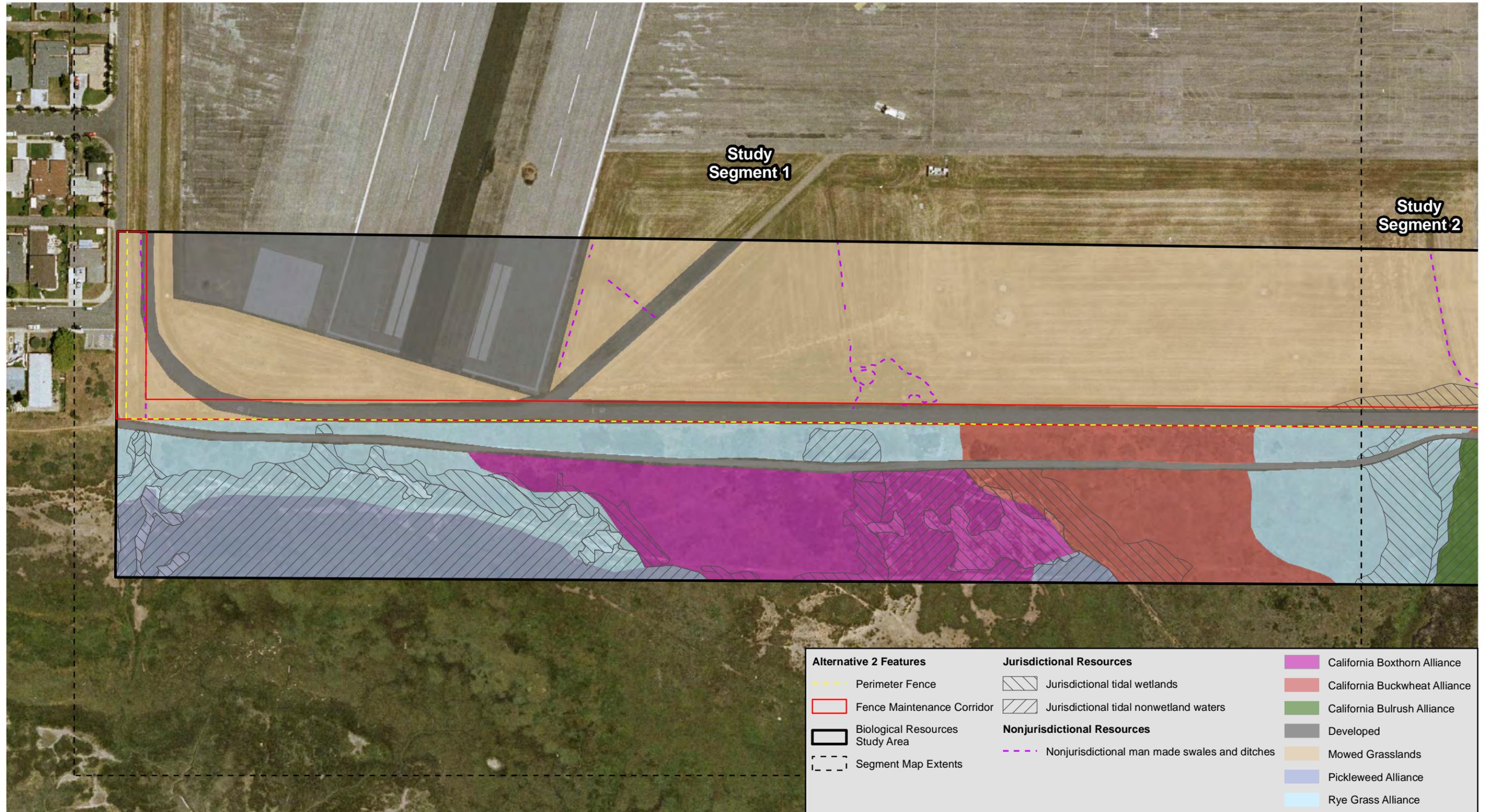
A total of 16.925¹ acres of USACE jurisdictional tidal wetlands occurs within the study area. A total of 3.663 acres USACE jurisdictional nontidal wetlands occurs within the study area. A total of 20.588 acres of USACE wetlands occur within the study area. A total of 16.621 acres of USACE jurisdictional tidal nonwetland waters occurs within the study area. A total of 3.323 acres and 395.39 linear feet of USACE jurisdictional nontidal nonwetland waters occurs within the study area. A total of 19.944 acres of USACE jurisdictional nonwetland waters occurs within the study area. A total of 40.532 acres of USACE jurisdictional waters of the U.S. occurs within the study area. Table 3.3-3 distinguishes the USACE jurisdictional status of the plant communities, and the acreage of each within the study area. Figures 3.3-2, 3.3-3, 3.3-4, 3.3-5, and 3.3-6 depict the USACE jurisdictional resources.

¹ Some areas relevant to the analysis are <0.01 acre, so in waters sections (only) acreages are provided to three decimal places.

**Table 3.3-3
Plant Communities and USACE Jurisdictional Waters of the U.S.
within the Proposed Action Area**

Plant Communities and Other Cover Types	Acreage
Jurisdictional Tidal Wetlands	
Pickleweed Alliance ¹	7.108
Alkali Heath Alliance ¹	3.557
California Bulrush Alliance ²	1.160
Arroyo Willow Alliance ³	1.074
Tidal Flats ⁴	2.121
Water ¹	0.079
California Boxthorn Alliance ⁵	0.557
Rye Grass Alliance ⁶	0.945
Crown Daisy Mapping Unit ¹	0.225
Mowed Grasslands ⁷	0.052
Developed ⁸	0.047
Total	16.925
Jurisdictional Nontidal Wetlands	
Arroyo Willow Alliance ⁹	2.721
Mulefat Alliance ¹⁰	0.825
Salt Cedar Alliance ¹	0.003
Crown Daisy Mapping Unit ¹¹	0.114
Total	3.663
Total USACE Jurisdictional Wetlands	20.588
Jurisdictional Tidal Nonwetland Waters	
Pickleweed Alliance ¹²	0.581
Alkali Heath Alliance ¹³	0.266
Arroyo Willow Alliance ¹⁴	2.809
Mulefat Alliance ¹⁵	0.830
Salt Cedar Alliance ¹⁶	1.324
Tidal Flats ¹⁷	0.219
Water ¹⁸	5.728
California Boxthorn Alliance ¹⁹	0.648
California Buckwheat Alliance ²⁰	0.434
California Sagebrush Alliance ²¹	0.084
Rye Grass Alliance ²²	0.905
Bermuda Grass Alliance ²³	0.050
Ripgut Brome Alliance ²⁴	0.031
Crown Daisy Mapping Unit ²⁵	0.537
Mowed Grasslands ²⁶	1.715
Developed ²⁷	0.400
Unmapped ²⁸	0.060
Total	16.621
Jurisdictional Nontidal Nonwetland Waters	
Arroyo Willow Alliance ²⁹	2.820
Mulefat Alliance ²⁹	0.002
Mowed Grasslands ²⁶	0.010
Crown Daisy Mapping Unit ³⁰	0.491
Total³¹	3.323
Total USACE Jurisdictional Nonwetland Waters	19.944
Total USACE Jurisdictional Waters of the U.S.	40.532

- ¹ This habitat was mapped as coastal salt marsh by Merkel & Associates (2012).
- ² This habitat was mapped as coastal brackish marsh by Merkel & Associates (2012).
- ³ This habitat was mapped as coastal salt marsh (0.690 acre) and nonnative riparian woodland (0.384 acre) by Merkel & Associates (2012).
- ⁴ This habitat was mapped as coastal salt marsh (2.102 acres) and nonnative riparian woodland (0.019 acre) by Merkel & Associates (2012).
- ⁵ This habitat was mapped as coastal salt marsh (0.540 acre) and disturbed herbaceous wetland (0.017 acre) by Merkel & Associates (2012).
- ⁶ This habitat was mapped as coastal brackish marsh (0.123 acre), coastal salt marsh (0.680 acre), and disturbed herbaceous wetland (0.142 acre) by Merkel & Associates (2012).
- ⁷ This habitat was mapped as disturbed herbaceous wetland by Merkel & Associates (2012).
- ⁸ This habitat was mapped as coastal salt marsh (0.103 acre) and disturbed herbaceous wetland (0.024 acre) by Merkel & Associates (2012).
- ⁹ This habitat was mapped as southern riparian woodland by Merkel & Associates (2012).
- ¹⁰ This habitat was mapped as coastal salt marsh (0.489 acre) and southern willow scrub (0.336 acre) by Merkel & Associates (2012).
- ¹¹ This habitat was mapped as coastal brackish marsh (0.043 acre) and southern riparian woodland (0.071 acre) by Merkel & Associates (2012).
- ¹² This habitat was mapped as saltpan/mudflat (0.504 acre), saltgrass grassland (0.012 acre), and open water (0.065 acre) by Merkel & Associates (2012).
- ¹³ This habitat was mapped as tamarisk scrub (0.128 acre) and nonnative grassland (0.138 acre) by Merkel & Associates (2012).
- ¹⁴ This habitat was mapped as tamarisk scrub (2.209 acres), open water (0.575 acre) and saltpan/mudflat (0.025 acre) by Merkel & Associates (2012).
- ¹⁵ This habitat was mapped as tamarisk scrub (0.817 acre) and open water (0.013 acre) by Merkel & Associates (2012).
- ¹⁶ This habitat was mapped as tamarisk scrub (1.290 acres) and open water (0.034 acre) by Merkel & Associates (2012).
- ¹⁷ This habitat was mapped as tamarisk scrub (0.001 acre), open water (0.190 acre), and saltpan/mudflat (0.028 acre) by Merkel & Associates (2012).
- ¹⁸ This habitat was mapped as maritime succulent scrub (0.100 acre) and open water (5.628 acres) by Merkel & Associates (2012).
- ¹⁹ This habitat was mapped as nonnative grassland (0.289 acre), saltpan/mudflat (0.327 acre), and maritime succulent scrub (0.032 acre) by Merkel & Associates (2012).
- ²⁰ This habitat was mapped as saltpan/mudflat (0.019 acre) and maritime succulent scrub (0.415 acre) by Merkel & Associates (2012).
- ²¹ This habitat was mapped as maritime succulent scrub by Merkel & Associates (2012).
- ²² This habitat was mapped as nonnative grassland (0.904 acre), saltpan/mudflat (0.085 acre), and maritime succulent scrub (0.034 acre) by Merkel & Associates (2012).
- ²³ This habitat was mapped as saltgrass grassland by Merkel & Associates (2012).
- ²⁴ This habitat was mapped as saltpan/mudflat by Merkel & Associates (2012).
- ²⁵ This habitat was mapped as tamarisk scrub (0.053 acre), Diegan coastal sage scrub (0.422 acre), open water (0.022 acre), and maritime succulent scrub (0.040 acre) by Merkel & Associates (2012).
- ²⁶ This habitat was mapped as nonnative grassland by Merkel & Associates (2012).
- ²⁷ This habitat was mapped as nonnative grassland (0.190 acre) and disturbed habitat (0.210 acre) by Merkel & Associates (2012).
- ²⁸ This area was mapped as tamarisk scrub by Merkel & Associates (2012). It is not within the Proposed Action area for either Alternative 1 or Alternative and therefore will not affect the impact analysis.
- ²⁹ This habitat was mapped as tamarisk scrub by Merkel & Associates (2012).
- ³⁰ This habitat was mapped as Diegan coastal sage by Merkel & Associates (2012).
- ³¹ This total of 3.323 acres does not include 395.39 linear feet of USACE jurisdictional nontidal nonwetland waters.



Source: Landiscor 2014; AECOM 2015; Merkel 2011

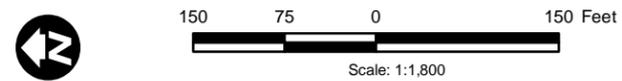
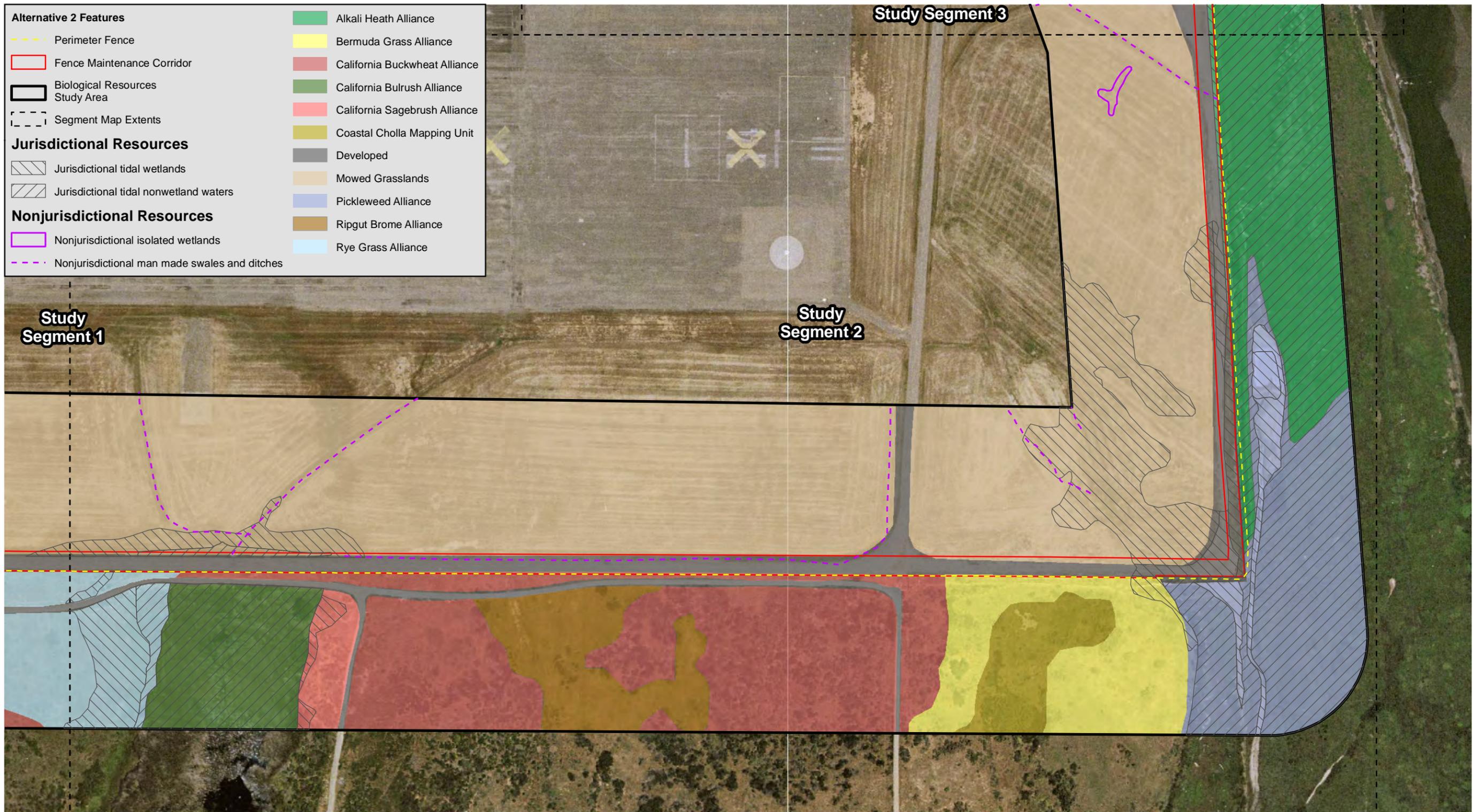


Figure 3.3-2
Plant Communities and U.S. Army Corps of Engineers
Jurisdictional Waters of the U.S. Segment 1

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Source: Landiscor 2014; AECOM 2015; Merkel 2011

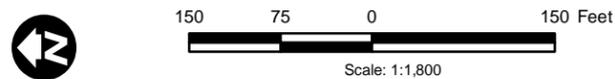
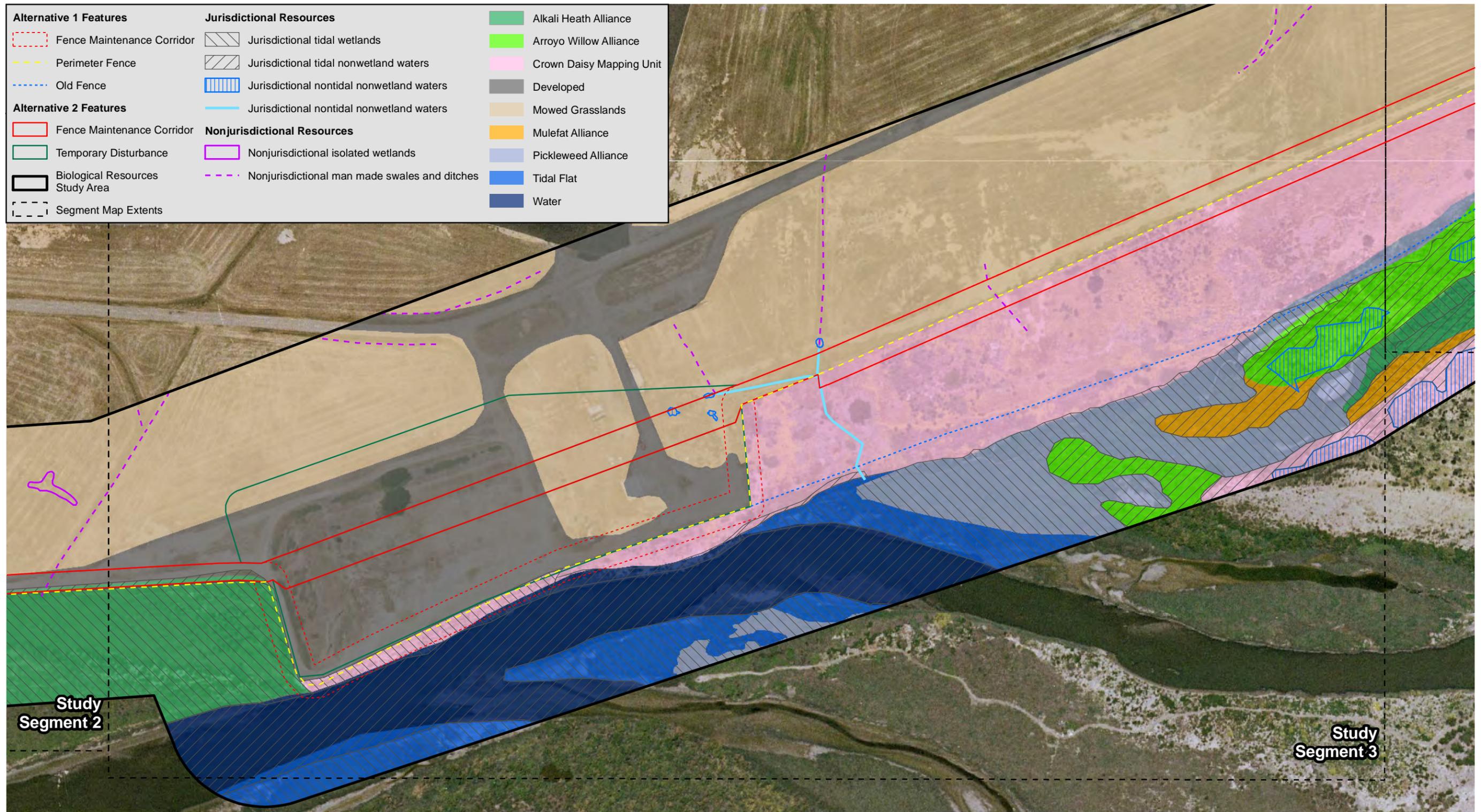


Figure 3.3-3
Plant Communities and U.S. Army Corps of Engineers
Jurisdictional Waters of the U.S. Segment 2

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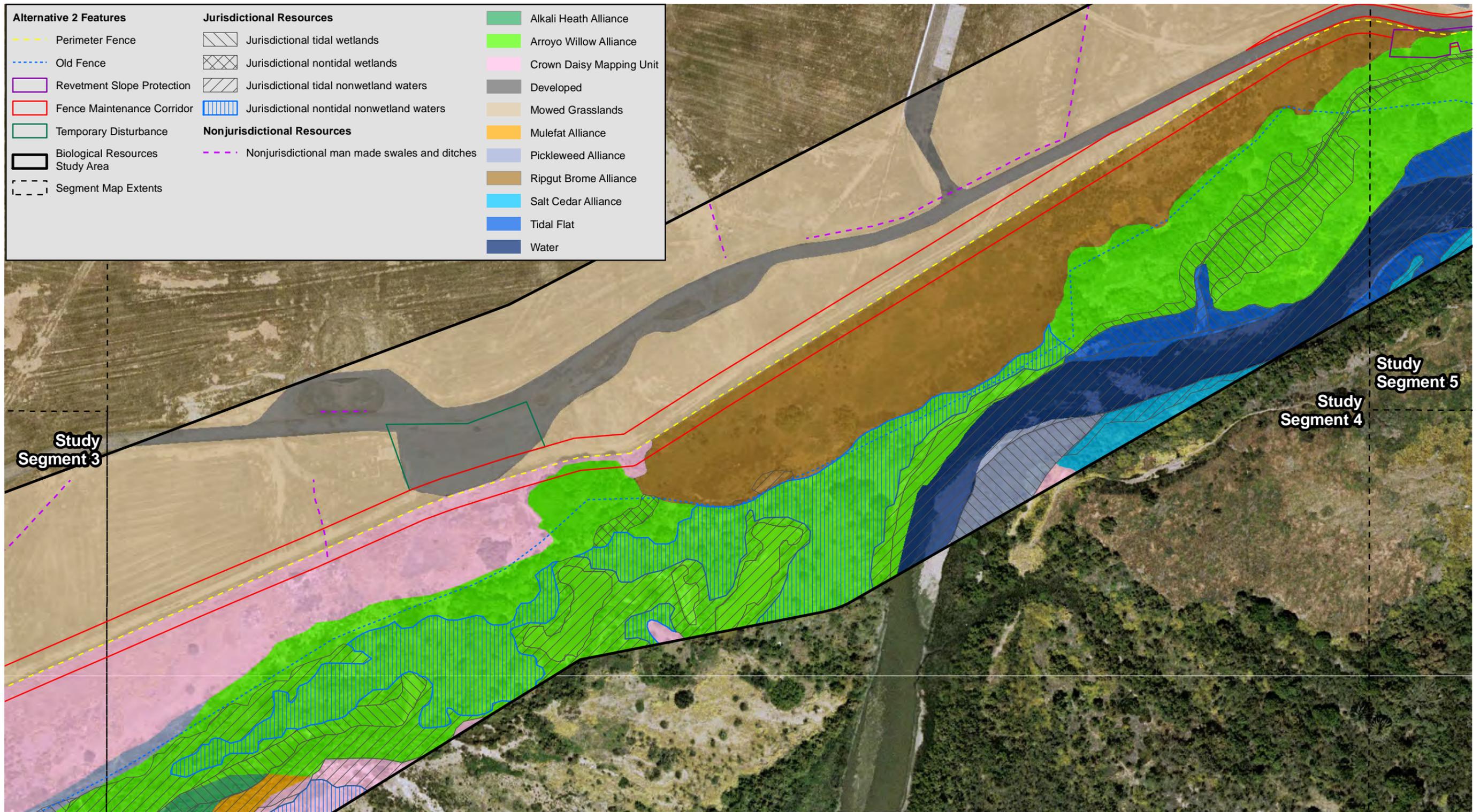


Source: LandisCor 2014; AECOM 2015; Merkel 2011



Figure 3.3-4
Plant Communities and U.S. Army Corps of Engineers
Jurisdictional Waters of the U.S. Segment 3

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Source: LandisCor 2014; AECOM 2015; 2015; Merkel 2011

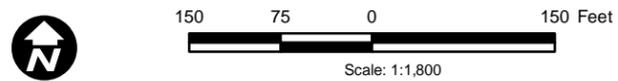
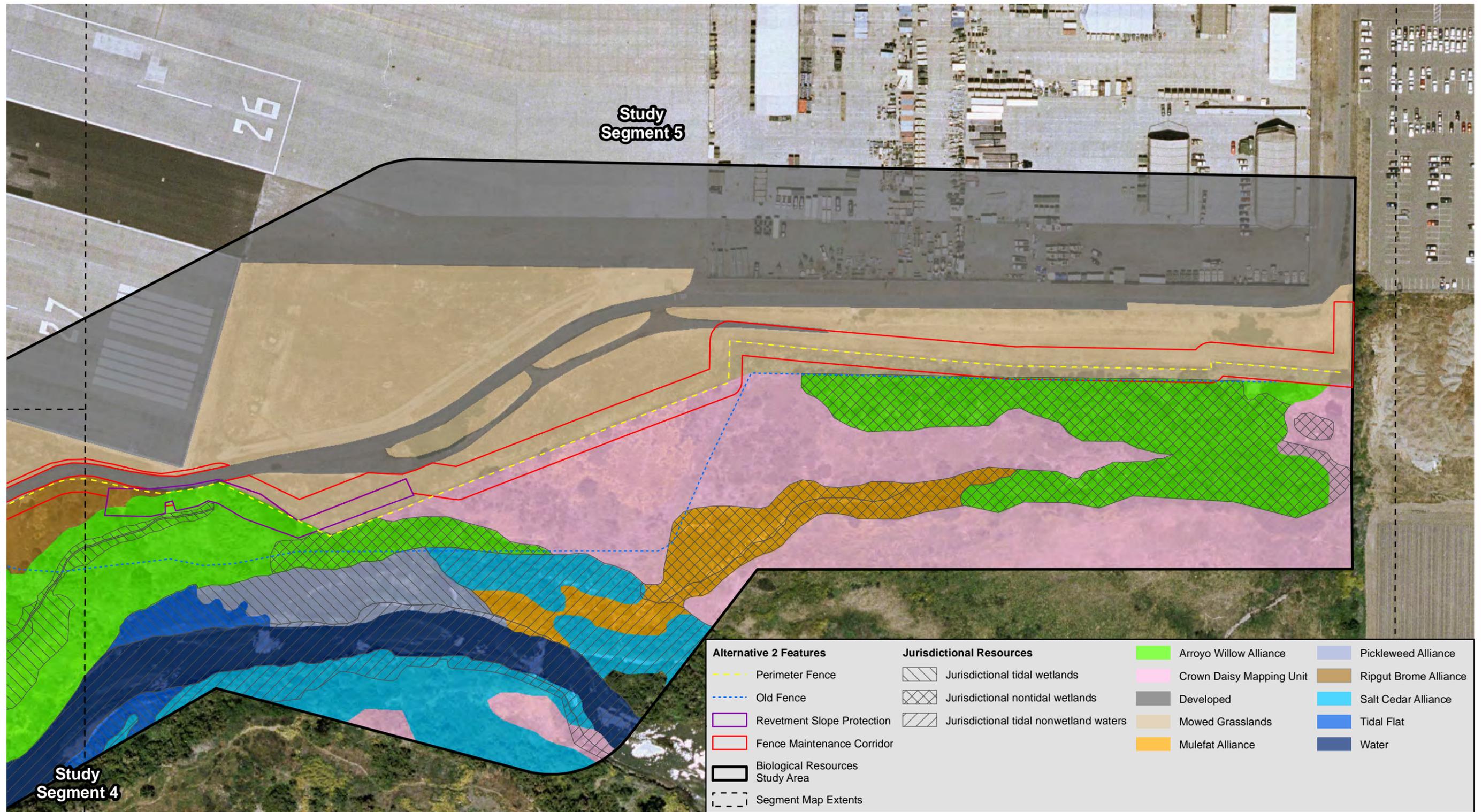


Figure 3.3-5
Plant Communities and U.S. Army Corps of Engineers
Jurisdictional Waters of the U.S. Segment 4

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Source: Landiscor 2014; AECOM 2015; Merkel 2011



Figure 3.3-6
Plant Communities and U.S. Army Corps of Engineers
Jurisdictional Waters of the U.S. Segment 5

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3.3.2.3 Federally Listed Plants

Salt Marsh Bird's Beak

Populations of salt marsh bird's beak at the Tijuana River Estuary and southward are fairly compact and scarcely branched. These southern populations flower in April and continue to bloom as late as December (Zedler et al. 1992). Salt marsh bird's beak is found in association with pickleweed, salt-cedar, salt grass, alkali heath, and sea lavender. Its abundance can vary significantly from year to year, which is possibly related to fluctuations in annual rainfall. Entire colonies have disappeared and reappeared 2 years later at the Tijuana River Estuary.

Historical Data

Historical surveys documented salt marsh bird's beak within southern coastal salt marsh habitat located to the west of the existing fenceline within the TSNWR (U.S. Navy 2011a; Merkel & Associates 2014).

Survey Methods and Results within the Proposed Action Area

Surveys for salt marsh bird's beak and other rare plant species were conducted for the Proposed Action in spring 2013. Botanical surveys involved examining the entire Proposed Action footprint on foot, searching for the focal federally listed species as well as nonlisted, but regionally rare, plant species. Specific surveys were also made of depressions, temporarily ponded areas, basins, road ruts, and potential vernal pools. Two surveys were conducted by botanists on March 26 and May 7, 2013. The details of the botanical surveys are included in Appendix B. No federally listed or other sensitive species of plants were found within the Proposed Action footprint. However, historically known locations of salt marsh bird's beak were confirmed on the outside of the western fenceline (AECOM 2015). The closest historical location was approximately 114 feet to the west of the existing fenceline. This location occurs within the Proposed Action Area but outside of the Proposed Action footprint (Figure 3.3-1).

3.3.2.4 Nonfederally Listed Rare Plants

Two botanical surveys were conducted by botanists on March 26 and May 7, 2013, and three nonfederally listed rare plants were documented within the Proposed Action Area. These rare plants listed in Table 3.3-4 are on the outside of the existing fenceline and would not need to be removed during fence repair or replacement activities.

**Table 3.3-4
Nonfederally Listed Rare Plants with California Native Plant Society
Special Status Known to Occur within the Proposed Action Area**

Scientific Name	Common Name	CNPS Status ¹	Habitat	Presence Within Proposed Action Area
<i>Ferocactus viridescens</i>	San Diego barrel cactus	2.1	chaparral, Diegan coastal scrub, valley and foothill grassland	Known to occur approximately 150 feet west of the existing western fence line.
<i>Juncus acutus</i> ssp. <i>Leopoldii</i>	Southwestern spiny rush	4.2	coastal and desert dunes, wetlands especially alkaline	Known to occur in the southwestern corner of the Proposed Action Area outside of the current fence line. The approximate population size at this location is 100 to 200 individuals. This population is approximately 20 feet south of the existing southern fence line.
<i>Lycium californicum</i>	California box-thorn	4.2	coastal bluff scrub, coastal sage scrub	Known to occur in coastal scrub 20 feet west of the western fence line.

Status derived from the California Natural Diversity Data Base maintained by the California Department of Fish and Wildlife (<http://www.dfg.ca.gov/biogeodata/>), and the California Native Plant Society's Inventory of Rare and Endangered Plants of California (<http://www.cnps.org/cnps/rareplants/ranking.php>).

¹California Native Plant Society (CNPS)

2=Rare or endangered in California, more common elsewhere

4= Limited distribution (Watch List)

CNPS code extensions:

.1 – Seriously endangered in California

.2 – Fairly endangered in California

3.3.2.5 Federally Listed Wildlife

Historical biological surveys conducted at NOLF IB are summarized within the NBC INRMP (U.S. Navy 2013). A brief survey overview is provided in Table 3.3-5. These species are discussed in more detail below, including relevant survey data and occurrence within the Proposed Action Area. There was one additional federally listed species, the California Least Tern (*Sternula antillarum browni*), that was detected flying along and foraging in the Tijuana River during several surveys in the spring 2013. This species does not nest or breed within the Proposed Action Area, but is known to nest around a mile to the west at the mouth of the Tijuana River. Since the California Least Tern is a federally listed species but is not expected to be affected by the Proposed Action, it will not be discussed further.

**Table 3.3-5
Federally Listed Wildlife Species Present within the Proposed Action Area**

Species Name	Survey Information	Habitat Affinities	Occurrence within the Proposed Action Area
Federally Listed Species			
San Diego Fairy Shrimp (<i>Branchinecta sandiegonensis</i>)	Protocol wet and dry season surveys for this species were conducted between 2012 and 2013 by AECOM. Wet season surveys were conducted from December 28, 2012, through March 18, 2013 (AECOM 2013), and dry season surveys were conducted in October 2013 (AECOM 2014). No listed species were detected; however, historical occurrence data are depicted in Figures 3.3-7a and 3.3-7b.	Restricted to vernal pools, basins, occasionally road ruts, and temporarily ponded features.	Occupied – Known to occur in one basin (RP2) along the southern fenceline within the Proposed Action Area based on surveys from 2008 and 2009 (U.S. Navy 2011a).
Light-footed Ridgway's Rail (<i>Rallus obsoletus levipes</i>)	Surveys for Light-footed Ridgway's Rail were conducted on April 19, 2013, through May 31, 2013. The survey area was limited to a 50-foot zone along the outside of the western edge of the NOLF IB perimeter fence, and a 300-foot zone along the southern edge of the perimeter fence. Six surveys were conducted with at least 1 week between surveys (Davenport Biological Services 2013). Survey findings are depicted in Figure 3.3-8.	Habitat includes southern coastal salt marshes, lagoons, and intertidal zones. This species nests in dense stands of cordgrass and pickleweed.	Occupied – Based on surveys conducted in 2013, this species is known to occur along the western and southern fenceline boundaries of NOLF IB (Davenport Biological Services 2013). Up to three pairs and one single rail occur within the Proposed Action Area.
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	Protocol surveys across all of NOLF IB for Least Bell's Vireo were conducted by the Navy in 2012 (U.S. Navy 2012). Species was not detected within the Proposed Action Area. Protocol surveys were conducted in 2009 (U.S. Navy 2011a), and Least Bell's Vireo was detected within the Proposed Action Area, which is depicted in Figure 3.3-9.	Nesting is associated with riparian woodland and is most frequent in areas that combine an understory of dense young willows or mulefat, with a canopy of tall willows.	Suitable habitat occurs along the outside of the current fenceline in the southeastern part of NOLF IB. Most recent surveys in 2012 did not detect the species within the Proposed Action Area (U.S. Navy 2012). However, on June 7 and July 12 2009, a male was observed singing with a juvenile in the area southeast of the proposed fence, but within the Proposed Action Area (U.S. Navy 2011a). There is the potential for at least one pair of Least Bell's Vireo to occur within the Proposed Action Area.

San Diego Fairy Shrimp

On NOLF IB, San Diego fairy shrimp are found in natural vernal pools, basins, road ruts, soil depressions, drainage channels, and other features that pond water. These areas are scattered throughout NOLF IB but occur primarily in the southern and western portions of NOLF IB. Since AECOM botanists did not find vernal pool plant indicator species within ponded areas surveyed in 2013, the various features that hold water and have fairy shrimp are herein referred to as basins (AECOM 2015). The majority of basins within the Proposed Action footprint are road ruts and depressions created by vehicles driving

around the inside of the perimeter fence. No specific sensitive plants or vernal pool indicator plants were found in the basins (Appendix B). The status of San Diego fairy shrimp within the Proposed Action Area is discussed in detail below.

Historical Data

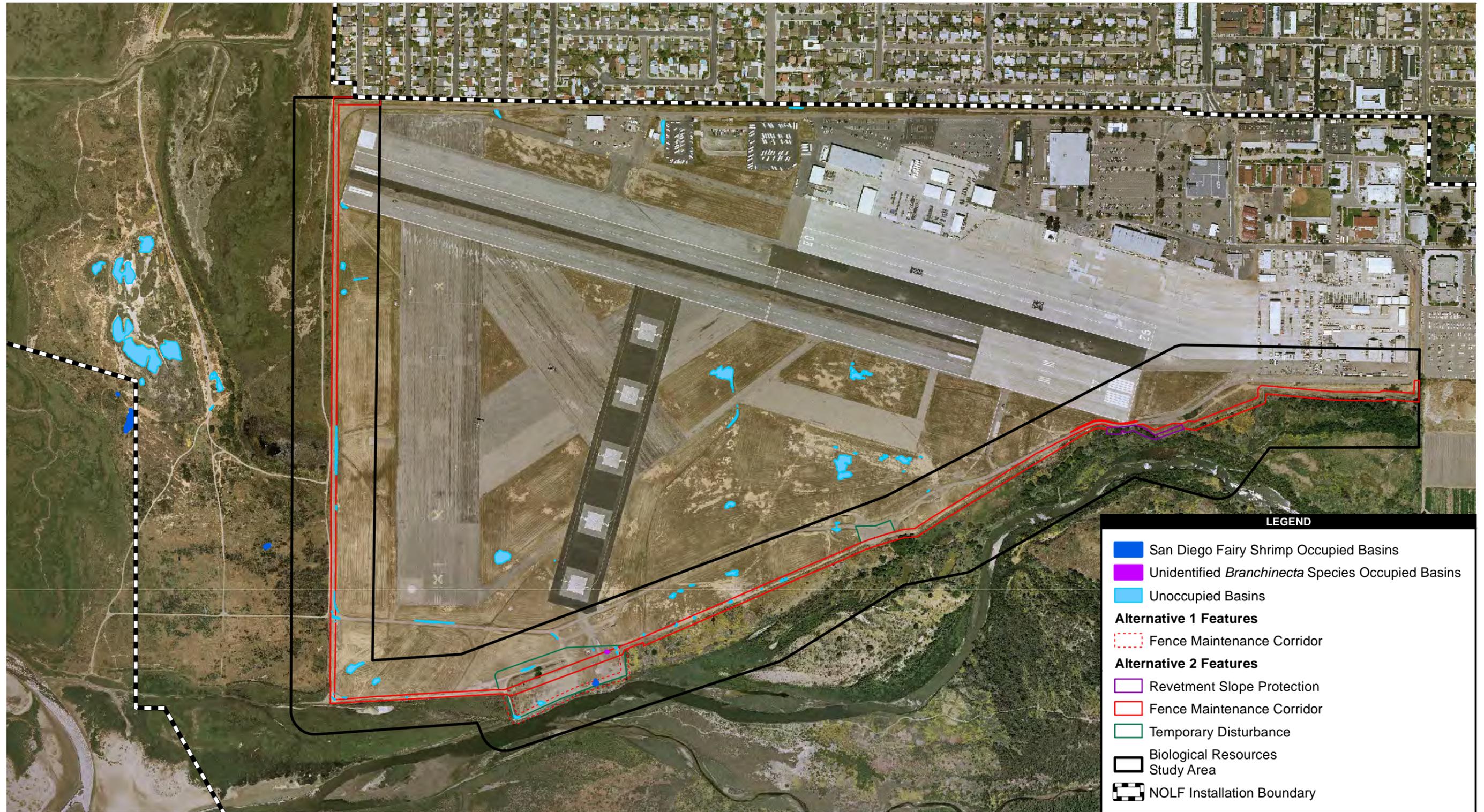
Between 2008 and 2009, protocol wet season fairy shrimp surveys were conducted across NOLF IB, and San Diego fairy shrimp were found in four basins that were surveyed (U.S. Navy 2011a; Figure 3.3-7a). Of these four basins, only one basin (RP2) is within the Proposed Action Area and is adjacent to the existing fenceline. Basin RP2 is located less than 10 feet north of the inside of the southern fenceline as shown in Figure 3.3-7b. Basin RP2 is located adjacent to the dirt perimeter road that parallels the inside of the fenceline and is in a disturbed area. The basin does not have vernal pool plant indicator species. Protocol dry season surveys were conducted in October 2009 on all basins that did not have fairy shrimp in them during wet season surveys. Low numbers of cysts were present in three of the five basins sampled, and none of the cysts hatched or grew to maturity (U.S. Navy 2011a). Therefore, the results of the 2008 and 2009 wet and dry season surveys concluded that, within the Proposed Action Area, San Diego fairy shrimp were present only in basin RP2.

Between 2010 and 2011, protocol wet season fairy shrimp surveys were conducted across NOLF IB and, despite several rain events and many of the basins filling, no San Diego fairy shrimp were detected in any of the basins (U.S. Navy 2011a). Protocol dry season surveys were conducted in 2010 on all basins where a complete protocol survey had not been conducted. Soil was collected and low numbers of cysts were extracted from four basins. The cysts were then allowed to hatch, but none reached maturity and could not be identified to species (U.S. Navy 2011a). One basin, known as basin W (Figure 3.3-7b), had unidentified *Branchinecta* species hatch out during the dry season analysis, but since they died before reaching maturity, they could not be conclusively identified. Therefore, the shrimp could represent the more commonly found nonlisted Lindahl's fairy shrimp (*Branchinecta lindahli*), or the listed San Diego fairy shrimp. The basin occupancy for basin W is unidentified *Branchinecta* species. Therefore, the 2010 and 2011 wet and dry season surveys did not conclusively identify any additional basins with San Diego fairy shrimp on NOLF IB.

Additional dry season sampling was conducted in March 2012 for one basin (known as RP1) located near the small arms firing range and north of the southern fenceline. The nearby vicinity had potentially hazardous chemical contaminants in the soil and the Navy was planning to clean up the site as part of an IR Program (Sites 6 and 7). After collection of the soil and examination, no branchiopod cysts were found in the soil, and therefore no fairy shrimp were detected (AECOM 2012). The location of this basin is depicted in Figure 3.3-7b.

Survey Methods within the Proposed Action Area

The most recent protocol wet season fairy shrimp surveys were conducted by AECOM in the 2012/2013 wet season (AECOM 2013). Six basins that had inconclusive or no historical data for branchiopod species



Source: LandisCor 2014; AECOM 2015; Merkel 2011

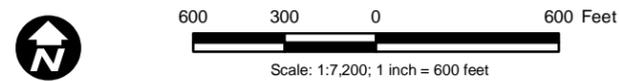
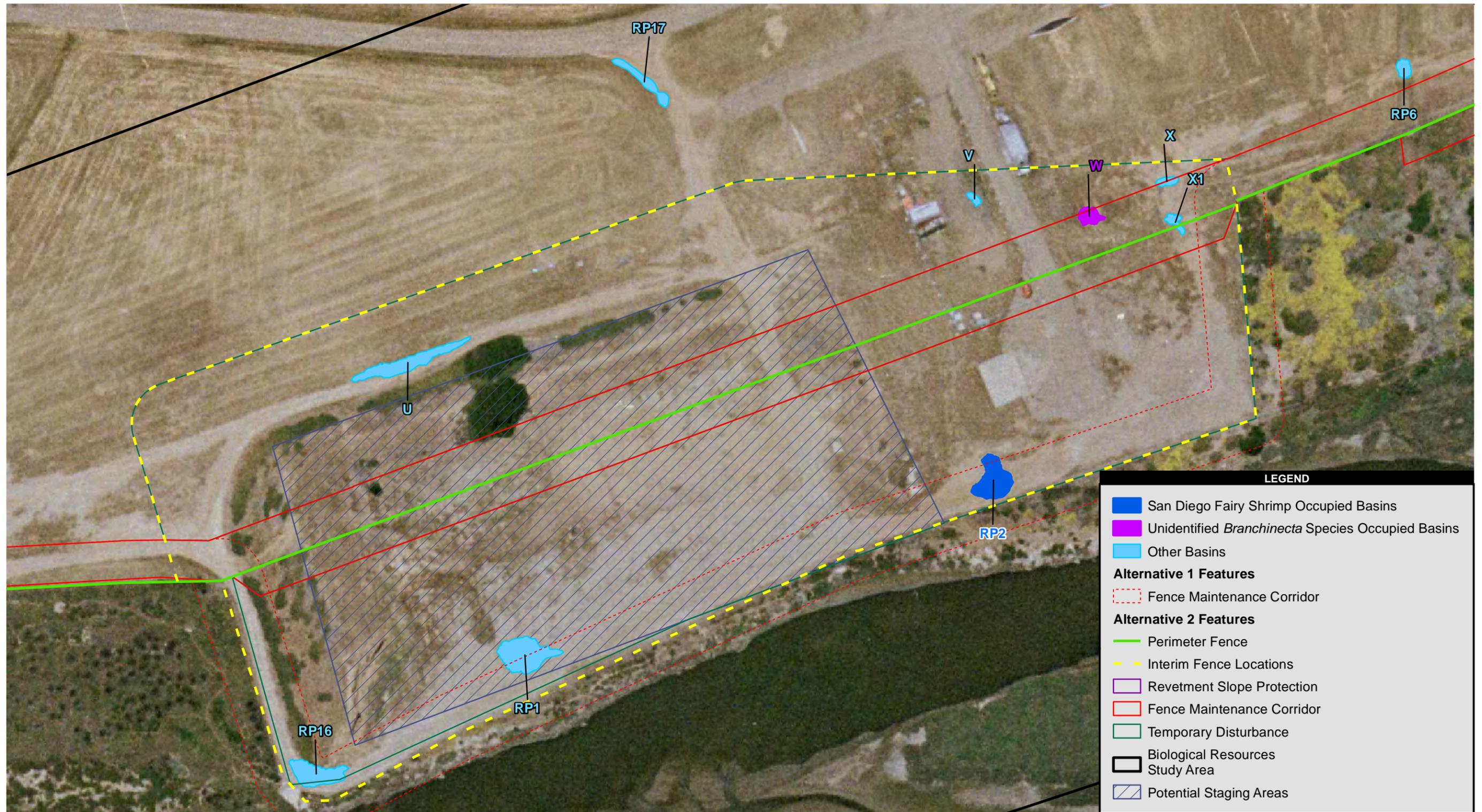


Figure 3.3-7a
Fairy Shrimp Results and Historical Occurrence Data
Overview Map

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Source: LandisCor 2014; AECOM 2015; Merkel 2011



Figure 3.3-7b
Fairy Shrimp Results and Historical Occurrence Data
Detail Map

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and were within 20 feet of the existing fenceline were included in 2012/2013 wet season surveys (Table 3.3-6 and Figure 3.3-7b). Protocol wet season surveys were conducted from December 28, 2012, through March 18, 2013. Of the six known basins, three met the sampling criteria per the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996) at least once during the 2012/2013 wet season and were sampled. All basins were sampled until they were completely dry and did not refill again. Any shrimp that were juveniles and did not have mature antennae were not collected, as they could not be conclusively identified to species in the lab.

Results of Wet Season Surveys

During 2012/2013 wet season surveys, three basins (RP2, RP3, and RP16) met the sampling criteria at some point during the wet season and were sampled. No listed species were found in any basins. Any basins that were sampled and had fairy shrimp in them contained Lindahl's fairy shrimp. The full details of the surveys are located within the survey report in Appendix B.

Results of Dry Season Surveys

Six soil samples were taken from basins W, X1, RP1, RP2, RP3, and RP16 on October 25, 2013. Each sample of approximately 1 liter of soil was placed in a plastic zip-lock bag. These are the same basins where wet season surveys were conducted during the 2012/2013 wet season. The samples were then sent to D. Christopher Rogers with University of Kansas to conduct cyst hatching. No special-status shrimp cysts were recovered from the soil samples. Fairy shrimp cysts belonging to the genus *Branchinecta* were recovered and cultured from basins RP3 and RP16. The adult shrimp were identified as the nonlisted Lindahl's fairy shrimp. Therefore, the six basins (W, X1, RP1, RP2, RP3, RP16), are considered to have had a complete protocol survey and none contained a listed species.

Between 2008 and 2013, three wet season surveys and three dry season surveys have been conducted on all six basins. Basin RP2 had San Diego fairy shrimp found in low numbers in 2008 but has not had San Diego fairy shrimp found since despite two wet season surveys and one dry season survey. For this EA, RP2 is the only basin within the Proposed Action Area considered occupied by San Diego fairy shrimp, while basin W is considered occupied by an unidentified *Branchinecta* species. The full details of the surveys are located within the survey report in Appendix B.

**Table 3.3-6
Summary of Fairy Shrimp Occupancy from 2008 through 2013**

Pool	2008/2009 ¹		2010/2011 ¹		2012 ²	2013	
	Wet Season	Dry Season	Wet Season	Dry Season	Dry Season	Wet Season ³	Dry Season
W	Not surveyed	Not surveyed	No shrimp detected	<i>Branchinecta</i> cysts present, could not be identified to species ⁴	Not surveyed	Did not inundate	No shrimp eggs were recovered from the soil samples.
X1	Not surveyed	Not surveyed	No shrimp detected	Not surveyed	Not surveyed	Did not inundate	No shrimp eggs were recovered from the soil samples.
RP1	No shrimp detected	<i>Branchinecta</i> cysts present, could not be identified to species ⁴	No shrimp detected	Not surveyed	No cysts detected	Did not inundate	No shrimp eggs were recovered from the soil samples.
RP2	<i>Branchinecta sandiegonensis</i> (population in 10s)	Not surveyed	No shrimp detected	Not surveyed	Not surveyed	<i>Branchinecta lindahli</i>	No shrimp eggs were recovered from the soil samples.
RP3	No shrimp detected	<i>Branchinecta</i> cysts present, could not be identified to species ⁴	No shrimp detected	Not surveyed	Not surveyed	<i>Branchinecta lindahli</i>	<i>Branchinecta lindahli</i>
RP16	Not surveyed	Not surveyed	Not surveyed	Not surveyed	Not surveyed	<i>Branchinecta lindahli</i> and <i>Branchinecta</i> species	<i>Branchinecta lindahli</i>

¹ Data from U.S. Navy 2011a

² Data from AECOM 2013. Dry season surveys were conducted September 16 through September 17, 2013.

³ Data from AECOM 2012-2013. Wet season surveys were conducted December 5, 2012, through April 16, 2013.

⁴ This pool contained a few *Branchinecta* cysts that hatched, but died before they reached maturity and therefore could not be identified to species. Therefore the basin occupancy is unidentified *Branchinecta* species.

Light-footed Ridgway's Rail

Historical Data

Annual surveys have been conducted since 1980 at the TSNWR, which includes NOLF IB. NOLF IB has supported between 12 and 64 percent of the rail population in the Tijuana Estuary since annual census began in 1980 (Hoffman 2007). Following 3 years of survey data in which the population of Light-footed Ridgway's Rails exceeds 100 pairs in the TSNWR, the most recent surveys conducted in 2014 yielded 75 breeding pairs within the TSNWR (Zemba et al. 2014). This is a 28.6 percent decrease from 2013 and 47.2 percent lower than the record high of 142 pairs in 2007. The TSNWR subpopulation accounts for 14.2 percent of the statewide population (Zemba et al. 2014).

Survey Methods and Results within the Proposed Action Area

Six surveys for Light-footed Ridgway's Rail were conducted between April 19, 2013, and May 31, 2013 (Davenport Biological Services 2013). The Light-footed Ridgway's Rail survey area was limited to a 50-foot zone along the outside of the western edge of the NOLF IB perimeter fence, and a 300-foot zone along the southern edge of perimeter fence. Light-footed Ridgway's Rails detected outside of this specific survey area were also recorded. Six surveys were conducted with at least 1 week between surveys. In an effort to decrease the probability of a false negative survey, two survey passes were completed per survey. Thus, within the survey area, a total of 12 survey passes were completed during the course of this study. To avoid disturbing nesting birds and to prevent damage to sensitive habitat, surveys were conducted from existing trails whenever possible. Trails usually followed the outside of the perimeter fence. Where Light-footed Ridgway's Rails were not heard, rail calls were played at approximately 33-foot intervals and only short broadcasts were used (approximately 5 seconds of "kek" calls). The short broadcast of calls was repeated twice at approximately 33-foot intervals, following an approximately 2-minute delay. The locations of Light-footed Ridgway's Rails were determined by either direct observation or estimation of location based on call location and were mapped in the field.

Eight pairs of Light-footed Ridgway's Rails and three single Light-footed Ridgway's Rails were detected during this survey. Of these, three pairs of Light-footed Ridgway's Rails and one single Light-footed Ridgway's Rail were detected within the survey area, which occurs within the Proposed Action Area (Figure 3.3-8). An additional three pairs were detected adjacent to the survey area and outside of the Proposed Action Area (Figure 3.3-8). Therefore, the Proposed Action has the potential to impact up to three pairs and one single Light-footed Ridgway's Rail. The full details of the surveys are located within the survey report in Appendix B.

Least Bell's Vireo

Historical Data

During surveys in 2009, a total of 23 territories and seven transient male Least Bell's Vireos were detected in the area to the southeast of the fence boundary within the TSNWR. More specifically, on June

7 and July 12, 2009, a male Least Bell's Vireo was observed singing with a juvenile in the area that is immediately adjacent to the southeast corner of the Proposed Action Area (Figure 3.3-8). Although a female was never observed with the male, given the presence of the juvenile Least Bell's Vireo, this territory was assumed occupied by one pair of Least Bell's Vireo. This likely represents one Least Bell's Vireo territory, or part of a territory. However, this species has not been detected during more recent surveys (in 2012 and 2015 [Shepherd personal communication 2015]), and is not expected to be directly impacted by the Proposed Action. The suitable habitat is located within the Proposed Action footprint along the southeast fenceline and approximately 0.03 acre of Arroyo Willow Alliance would be removed to comply with AT/FP clear zone regulations.

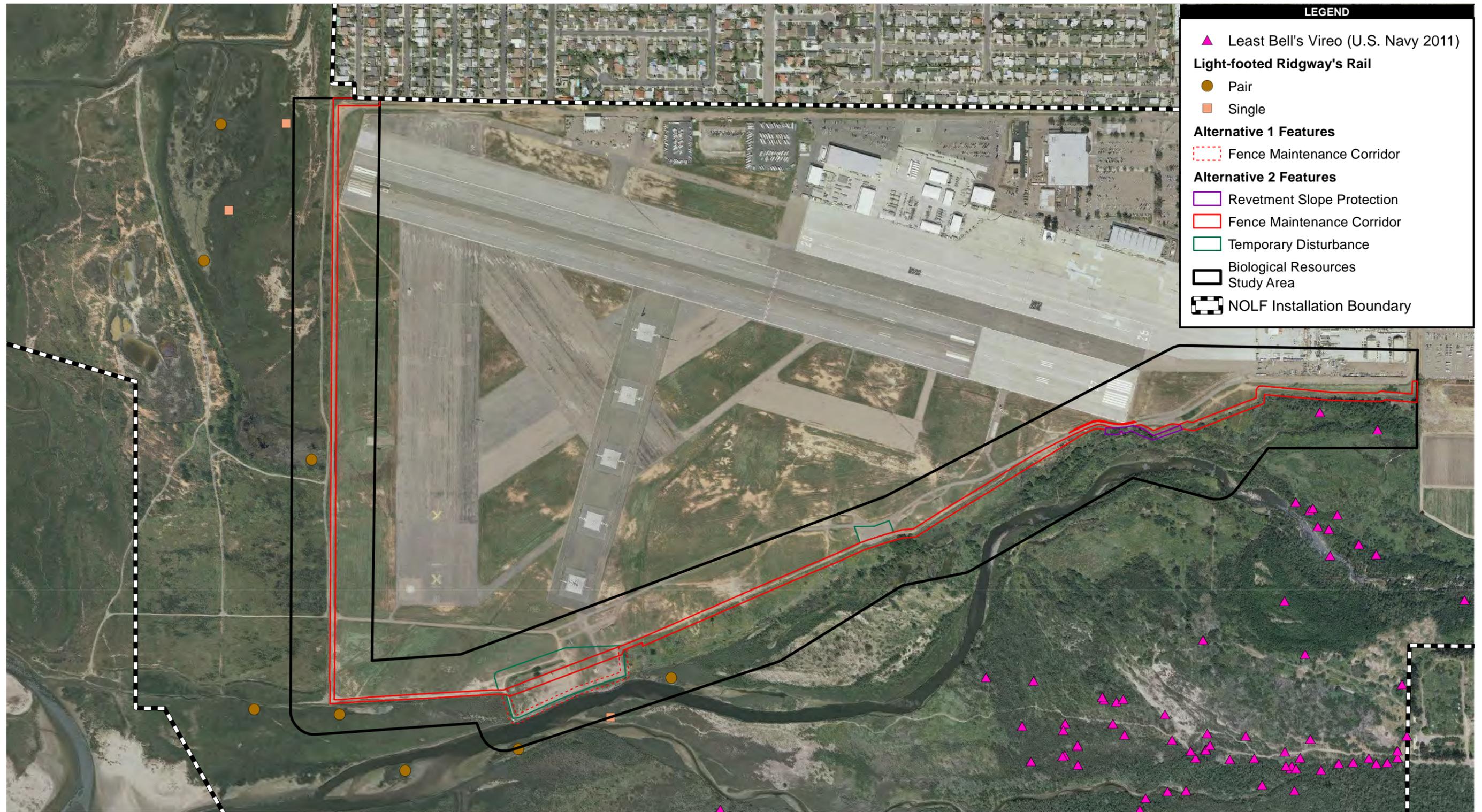
Survey Methods and Results within the Proposed Action Area

The most recent focused, protocol Least Bell's Vireo surveys were conducted at NOLF IB using the standard USFWS protocol in 2012 and 2015 (currently in progress) (U.S. Navy 2012). There is abundant riparian vegetation and stands of willows in the eastern and southeastern portions of NOLF IB, outside the fenceline within lands co-managed as part of the TSNWR. No suitable habitat for the species is available to the north of the fenceline. Surveys in 2012 and 2015 have not confirmed the presence of Least Bell's Vireos within the Proposed Action Area, but the 2012 survey documented 22 territories and eight transient or dispersing Least Bell's Vireos to the south of the Proposed Action Area (U.S. Navy 2012). The full details of the 2012 surveys are located within the survey report in Appendix B.

3.3.2.6 Nonfederally Listed Rare Wildlife

The Proposed Action Area supports a variety of rare wildlife. Based on historical surveys conducted in 2009 and 2010, no nonlisted rare reptile, amphibian, or mammalian species have been detected within the Proposed Action Area (U.S. Navy 2011a). The full details of the survey methodology, results, and discussion of historical surveys conducted to inventory species on NOLF IB are located in the Biological Resources Inventory Report 2009/2010 (U.S. Navy 2011a).

Several species of nonlisted sensitive avian species have been detected within the Proposed Action Area. Due to the adjacency of the Tijuana River and native habitat south of NOLF IB, numerous nonlisted rare avian species have been detected within and around the Proposed Action Area. Many of these nonlisted rare avian species may be migrating through the Proposed Action Area and therefore would only be occasionally detected as they transition through the area. Many sensitive avian species may fly through the Proposed Action Area during migration and pause to rest, refuel, or temporarily take refuge; however, these migratory species will not be discussed individually. Table 7-4 of the INRMP (U.S. Navy 2013) includes a full list of sensitive avian species known to occur, or with a potential to occur on NOLF IB. Nonfederally listed sensitive avian species that have a potential to spend a significant part of their life foraging, breeding, or wintering (spend several weeks to months during the winter) within the Proposed Action Area are listed in Table 3.3-7. The occurrence data were taken from the Biological Resources Inventory Report (U.S. Navy 2011a) and from incidental observations during biological surveys for the Proposed Action in 2013.



Source: LandisCor 2014; AECOM 2015; Merkel 2011; U.S. Navy 2011

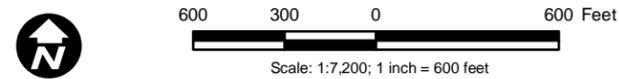


Figure 3.3-8
Light-footed Ridgway's Rail and Least Bell's Vireo Survey Results

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**Table 3.3-7
Nonfederally Listed Sensitive Avian Species Present within the Proposed Action Area**

Species Common Name	Species Scientific Name	Sensitivity Status¹	Breeding/Wintering Habitat	Potential to Occur within the Proposed Action Area²
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	Federally delisted, FP (nesting colony and communal roosts)	Breeds on offshore islands in the Pacific. Winters along rocky coastlines and sand bars. Forages over the open ocean, inlets, bays, and estuaries.	Present; observed foraging within the Proposed Action Area around the Tijuana River, but no suitable breeding habitat exists.
White-tailed Kite	<i>Elanus leucurus</i>	FP (nesting)	Breeds and winters in savanna, open woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields.	Present; observed foraging within the Proposed Action Area, and known to nest south of fenceline in the Tijuana River Valley.
Northern Harrier	<i>Circus cyaneus</i>	SSC (nesting)	Breeds and winters in open wetlands, meadows, pastures, prairies, grasslands, croplands, and riparian woodlands.	Present; observed foraging within the Proposed Action Area, and known to nest south of fenceline in the Tijuana River Valley.
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Federally delisted, FP, BCC, PIF	Breeds on cliff/rock faces, bridges, tall buildings, and other high structures with ledges. Forages for birds along coastlines, estuaries, and other areas where birds congregate.	Present; observed foraging within the Proposed Action Area, but no potential to nest in the Proposed Action Area.
Long-billed Curlew	<i>Numenius americanus</i>	BCC, PIF	Breeds in sparse, short grasses, including shortgrass and mixed-grass prairies, as well as agricultural fields. Winters at wetlands, tidal estuaries, mudflats, flooded fields, and occasionally beaches.	Present; observed foraging within the Proposed Action Area, but no potential to nest in the Proposed Action Area.
Caspian Tern	<i>Hydroprogne caspia</i>	BCC (nesting colony)	Breeds along waterways on sandy beaches, spits, dredge piles, islands, and other features in proximity to water.	Present; observed foraging within the Proposed Action Area, but no potential to nest in the Proposed Action Area. The species nests nearby at the mouth of the Tijuana River.
Burrowing Owl	<i>Athene cunicularia</i>	BCC, PIF, SSC (burrow sites and some winter sites)	Breeds and winters in flat, open terrain with soft soil, short grass, sparsely distributed vegetation, or exposed ground. Also found along the banks of irrigation canals. Known to breed on NASNI and last known breeding attempt at NOLF IB was in 2006.	Present; historically known to breed west of the NOLF IB runway, but more reliably known to winter within and adjacent to the Proposed Action Area west of the runway.

Species Common Name	Species Scientific Name	Sensitivity Status ¹	Breeding/Wintering Habitat	Potential to Occur within the Proposed Action Area ²
Loggerhead Shrike	<i>Lanius ludovicianus</i>	BCC, PIF, SSC	Breeds and winters in open country, including grasslands where there are scattered trees, tall shrubs, fence posts, utility wires, or other lookout posts.	Present; observed foraging within the Proposed Action Area, but not likely to nest in the Proposed Action Area.
Mountain Plover	<i>Charadrius montanus</i>	BCC, PIF, SSC (wintering)	Breeds on open plains at moderate elevations. Winters in short-grass plains and fields, plowed fields, and sandy deserts.	Present only during winter months as a rare winter resident.
San Diego Coastal Cactus Wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	BCC, PIF, SSC	Breeds and winters in coastal sage scrub, including prickly pear and/or cholla cacti; found only in coastal and near-coastal portions of California, generally below 3,000 feet.	Present in clumps of cactus and maritime succulent scrub to the west of the western fenceline.
Clark's Marsh Wren	<i>Cistothorus palustris clarkae</i>	SSC	Breeds in southern California marsh habitats including freshwater and brackish marshes.	Present, suitable breeding habitat in marsh habitat to the west of the western fenceline.
Yellow Warbler	<i>Dendroica petechia</i>	BCC, SSC (nesting)	Breeds in thickets and other disturbed or regrowing habitats, particularly along streams and wetlands. Very few winter in North America in similar habitats.	Present, suitable breeding habitat in riparian vegetation along the southeastern border of fenceline.
Large-billed Savannah Sparrow	<i>Passerculus sandwichensis rostratus</i>	SSC (wintering)	Breeds in open, low salt marsh vegetation, including grasses, pickleweed, and iodine bush (does not breed in North America). Winters along shorelines within its California nonbreeding range.	Present, only known to spend the winter in the area.
Belding's Savannah Sparrow	<i>Passerculus sandwichensis beldingi</i>	SE	Resident in salt marshes with dense pickleweed, particularly <i>Salicornia virginica</i> , within which most nests are found. Found in areas with tidal flow.	Present year-round with suitable nesting habitat adjacent to the southern fenceline.

¹ BCC: USFWS Bird(s) of Conservation Concern

SSC: State Species of Special Concern

SE: State Endangered

FP: State fully protected species

SSC status taken from the CDFW Special Animals List (CDFW 2015).

Partners In Flight (PIF) species from DoD PIF Priority Species list (DoD 2011).

Within the sensitivity status column, parentheses around nesting, wintering, staging, nesting colony, and burrow sites indicate that the particular sensitivity status applies to the species when the species is nesting, wintering, staging, in a nesting colony, or its burrow sites.

² Species potential to occur was based on the most recent biological surveys conducted by AECOM in 2013 and U.S. Navy 2011a.

3.3.2.7 Wildlife Corridors

Since many wildlife species have species-specific habitat requirements for survival and dispersal, corridors may also be species specific. At a minimum, corridors promote local colonization or recolonization of distinct habitat patches and potentially increase genetic variability within and between populations. In an urban context, a wildlife migration corridor can be defined as a linear landscape feature of sufficient width and buffer to allow wildlife movement between two patches of comparatively undisturbed habitat, or between a patch of habitat and some vital resources. Regional corridors are defined as those linking two or more large areas of natural open space, and local corridors are defined as those allowing resident wildlife to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development.

Many corridors in southern California are riparian corridors. These are important to regional and local connectivity in two functional capacities. First, riparian corridors provide linear habitat with sufficient structural vegetative cover to allow the passage of many different types of wildlife. Second, riparian habitat has inherent value to wildlife. In the semiarid Mediterranean climate of San Diego, water is a valuable limited resource. For this reason, many animals specifically inhabit these areas, inhabit these areas for at least one life-stage, or often move in and out of these areas from adjacent upland habitats throughout the course of their lifetime.

Around NOLF IB, the Tijuana River Valley functions as a wildlife corridor connecting eastern San Diego County with the Pacific Ocean. It also provides a critical stepping-stone for species migrating north or south along the Pacific Flyway. NOLF IB is located within the Tijuana River Valley and the Tijuana River runs roughly parallel to the southern fenceline. Therefore, the potential exists for species to use the habitat south of the southern fenceline as a wildlife corridor.

3.3.3 Environmental Consequences

3.3.3.1 Approach to Analysis

Under NEPA, biological resources may be either directly or indirectly affected by a project. Furthermore, direct and indirect impacts may be either permanent or temporary in nature. These impacts are defined below.

Direct: Direct impacts are caused by the action and occur at the same time and place as the action.

Indirect: Indirect impacts occur later in time or are farther removed in distance but are still reasonably foreseeable and attributable to project-related activities.

Permanent: All impacts that result in irreversible effects or removal of biological resources are considered permanent.

Temporary: Any impacts considered to have reversible effects on biological resources may be viewed as temporary.

This EA analyzes fence replacement impacts to biological resources associated with the Proposed Action.

Permanent direct impacts would occur from fence replacement activities, including permanent direct losses to native habitats (through removal for AT/FP requirements), potential jurisdictional waters, and sensitive species. Direct impacts may include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds.

Potential indirect impacts may occur to biological resources adjacent to the fence. The 250-foot buffer was assessed to determine what types of indirect impacts may result from fence replacement.

Examples of indirect impacts to biological resources may include the following:

- *Noise:* Higher ambient noise levels often result from development (construction and operation), which can adversely affect species that rely on sound to communicate (birds, frogs, etc.). The impact of noise on wildlife likely differs from species to species and is dependent on the source of the noise (e.g., aircraft versus blasting) and the decibel level, duration, and timing.
- *Changes in Hydrology:* Changes in hydrology, runoff, and sedimentation could indirectly affect surface water-dependent species. Increased runoff into native habitat and channelization for flood control could result in increased erosion and rates of scouring, which could result in downstream habitat loss for some species. Similarly, increased magnitude and frequency of high flows from urbanization could cause bank erosion and channel widening, and adversely affect species that rely on natural flow regimes for their persistence. Urban runoff can increase the temperature of adjacent streams due to higher water temperatures from streets, rooftops, and parking lots, and increases the variety and amount of pollutants carried into streams, rivers, and lakes. Perennial water sources may favor exotic species that can prey on and/or compete with native species.
- *Exotic Species:* Nonnative plant and animal species have few natural predators or other ecological controls on their population sizes, and they often thrive in disturbed habitats. Nonnative species may aggressively outcompete native species or otherwise harm sensitive species; e.g., exotic plant species, such as giant reed, can rapidly invade native habitat areas and alter water flow and/or quantities as well as vegetation diversity and/or composition.
- *Lighting:* Artificial night lighting could affect the habitat value for some species, particularly for nocturnal species, through potential modification of predation rates, obscuring of lunar cycles, and/or causing direct habitat avoidance.
- *Fugitive Dust:* Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration.

Temporary, indirect impacts may arise from construction-related noise levels; construction-generated fugitive dust accumulation on surrounding vegetation; and construction-related erosion, runoff, and sedimentation into plant communities. Indirect impacts from these construction-related activities would be temporary, as these impacts would end with cessation of fence replacement.

Permanent, indirect impacts to adjacent habitat could arise from increased human use of the area and the potential for long-term increased predation, increase in exotic species invasion, potential erosion, runoff, and sedimentation into riparian areas.

The special conservation and construction measures for biological resources listed at the end of Section 3.3.3.2 (and in Appendix B) would be incorporated as part of the Proposed Action and would avoid and minimize many potential direct and indirect impacts to sensitive biological resources. These include general conservation measures (conservation measure [CM] 1 through CM-11) as well as species-specific conservation measures (CM-12 through CM-21). These measures are referred to below where relevant.

3.3.3.2 Alternative 1

Under Alternative 1, certain sections of the perimeter fence may be repaired and left in place, or completely replaced. It is unknown at this time which sections may need to be repaired or replaced. Given the uncertain nature of repairing or replacing particular sections of the fence, for the purposes of conservative analysis the scenario of complete fence replacement is discussed per resource below. For biological resources, fence repair is generally less impacting on the specific resource than fence replacement. The AT/FP requirement of maintaining clear zones would be implemented in certain sections, particularly along the southern boundary where vegetation trimming is necessary. There would be no slope stabilization or revetment, and the security perimeter road would not be resurfaced on an accelerated schedule.

Impacts

Plant Communities and Other Cover Types

Potential impacts associated with Alternative 1 are quantified by plant community and cover type in Table 3.3-8. This includes the vegetation that would need to be cleared up to 20 feet outside the existing fenceline to comply with AT/FP requirements.

**Table 3.3-8
Proposed Action Footprint Permanent Impacts**

Plant Communities and Other Cover Types	Permanent Acreage
20-foot Outside Fenceline	0.03
Arroyo Willow Alliance (<i>Salix lasiolepis</i> Alliance) ¹	0.03

¹ This acreage of Arroyo Willow Alliance is suitable to support Least Bell's Vireo.

To comply with AT/FP regulations, 0.03 acre of Arroyo Willow Alliance would be permanently removed that is suitable to support the Least Bell's Vireo.

Waters of the U.S.

DIRECT IMPACTS

A total of 0.35 acre of USACE jurisdictional tidal wetlands would be permanently impacted by Alternative 1. A total of 0.38 acre USACE jurisdictional nontidal wetlands would be permanently impacted by Alternative 1. A total of 0.501 acre of USACE jurisdictional tidal nonwetland waters would be permanently impacted by Alternative 1. A total of 188.9 linear feet of USACE jurisdictional nontidal nonwetland waters would be permanently impacted by Alternative 1. A total of 0.881 acre and additional 188.9 linear feet of jurisdictional waters of the U.S. would be impacted by Alternative 1. There are no direct temporary impacts to jurisdictional waters of the U.S. from Alternative 1. Table 3.3-9 distinguishes the USACE jurisdictional status of the vegetation communities, and the impacts to each from Alternative 1.

**Table 3.3-9
Proposed Action Footprint Permanent and Temporary Direct Impacts
to USACE Jurisdictional Waters of the U.S. (in acres)**

Vegetation Community	Permanent	Temporary	Total
Jurisdictional Tidal Wetlands			
Alkali heath alliance ¹	0.089	0.000	0.089
Open water ¹	0.026	0.000	0.026
Crown daisy mapping unit ¹	0.192	0.000	0.192
Mowed grasslands ²	0.019	0.000	0.019
Developed ²	0.024	0.000	0.024
Total	0.350	0.000	0.350
Jurisdictional Nontidal Wetlands			
Arroyo willow alliance ³	0.030	0.000	0.030
Total	0.030	0.000	0.030
Grand Total Wetlands			
	0.380	0.000	0.380
Jurisdictional Tidal Nonwetland Waters			
Alkali heath alliance ⁴	0.104	0.000	0.104
Open water ⁵	0.026	0.000	0.026
Crown daisy mapping unit ⁵	0.002	0.000	0.002
Mowed grasslands ⁴	0.034	0.000	0.034
Bermuda grass alliance ⁶	0.002	0.000	0.002
Rye grass alliance ⁴	0.001	0.000	0.001
Developed ⁷	0.332	0.000	0.332
Total	0.501	0.000	0.501
Total Nonwetland Waters	0.501	0.000	0.501
Total Jurisdictional Waters of the U.S. ⁸	0.881	0.000	0.881

¹ This habitat was mapped as coastal salt marsh by Merkel & Associates (2012).

² This habitat was as disturbed habitat by Merkel & Associates (2012).

³ This habitat was mapped as southern riparian woodland by Merkel & Associates (2012).

⁴ This habitat was mapped as nonnative grasslands by Merkel & Associates (2012).

⁵ This habitat was mapped as maritime succulent scrub by Merkel & Associates (2012).

⁶ This habitat was mapped as saltgrass grassland by Merkel & Associates (2012).

⁷ This habitat was mapped as nonnative grassland (0.182 acre) and disturbed habitat (0.150 acre) by Merkel & Associates (2012).

⁸ Totals do not include 188.9 linear feet of nontidal nonwetland waters.

CM-4 and CM-6 would avoid and minimize potential impacts to jurisdictional habitats by restoring native plant communities and cover type areas temporarily affected. The biological monitor would ensure that no unauthorized trespass (vehicles, equipment, or personnel) occurs during fence removal and installation inadvertently directly impacting jurisdictional habitats. CM-19 would ensure that no salt marsh vegetation would be permanently removed from outside the existing fenceline within the TSNWR. Though it may be necessary to trim vegetation or trample salt marsh vegetation along the outside of the fenceline during fence removal and installation, it is anticipated this vegetation will grow back naturally following fence installation.

INDIRECT IMPACTS

Temporary, indirect impacts to jurisdictional habitats may arise from construction-generated fugitive dust accumulation on surrounding vegetation; and construction-related erosion, runoff, and sedimentation into jurisdictional habitats. Indirect impacts from these construction-related activities would be temporary, as these impacts would end with cessation of fence replacement.

Permanent, indirect impacts to adjacent jurisdictional habitats could arise from the potential for long-term increase in exotic species invasion, potential erosion, runoff, and sedimentation into jurisdictional waters of the U.S.

BMPs, and biological monitoring as detailed in CM-4 and CM-6, would avoid and minimize potential impacts to jurisdictional habitats by preventing any dust, dirt, or sand from fence removal and replacement activities from entering southern coastal salt marsh habitat. The biological monitor would ensure that no unauthorized trespass (vehicles, equipment, or personnel) occurs during fence removal and installation. CM-10 would avoid and minimize potential indirect impacts to jurisdictional habitats from invasive species by ensuring that all equipment and/or vehicles would be clean and free of mud, dirt, and weeds before entering NOLF IB.

There may be minor fugitive dust accumulation on surrounding vegetation related to fence repair or replacement, and construction-related erosion, runoff, and sedimentation into plant communities. Indirect impacts from these construction-related activities would be temporary, as these impacts would end once fence repair or replacement activities are complete.

Federally Listed Plants

SALT MARSH BIRD'S BEAK

The closest salt marsh bird's beak is located approximately 114 feet to the west of the Proposed Action footprint on the west side of NOLF IB within the TSNWR.

DIRECT IMPACTS

No permanent impacts are anticipated because no salt marsh bird's beak would be removed by the Proposed Action. There are potential short-term direct impacts from construction-generated dust. However, BMPs, and biological monitoring as detailed in CM-4 and CM-6, would reduce potential impacts to salt marsh bird's beak by preventing any dust, dirt, or sand from fence removal and replacement activities from entering southern coastal salt marsh habitat. The biological monitor would ensure that no unauthorized trespass (vehicles, equipment, or personnel) occurs during fence removal and installation.

INDIRECT IMPACTS

After the perimeter fence is repaired or replaced, no indirect impacts are anticipated to salt marsh bird's beak.

Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

Nonfederally Listed Rare Plants

Three nonfederally listed rare plants occur within the Proposed Action Area that may experience some level of impacts related to fence repair or replacement. San Diego barrel cactus, southwestern spiny rush, and California box-thorn occur to the west and south of the existing perimeter fence.

DIRECT IMPACTS

Minor vegetation trimming or trampling may occur during fence repair or replacement. No rare plants would be removed, destroyed, or otherwise permanently harmed, minor temporary vegetation trimming (that is anticipated to regrow) may be needed while removing and repairing or replacing the fence.

INDIRECT IMPACTS

There may be minor fugitive dust accumulation on surrounding vegetation related to fence repair or replacement, and construction-related erosion, runoff, and sedimentation into plant communities. Indirect impacts from these construction-related activities would be temporary, as these impacts would end once fence repair or replacement activities are complete.

Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

Federally Listed Wildlife

SAN DIEGO FAIRY SHRIMP

There is one San Diego fairy shrimp-occupied basin (RP2) and one unidentified *Branchinecta* species basin (W) within the Proposed Action Area (Figure 3.3-7b).

DIRECT IMPACTS

There is the potential for direct impacts to San Diego fairy shrimp-occupied habitat due to fence replacement activities. Activities related to fence replacement would occur immediately adjacent to basins RP2 and W. The existing perimeter fence runs a few feet south of basin RP2. This fence would be replaced in the same location with an interim fence until the final fence is placed to the north of the small arms range. There is also the potential for an interim fence to be placed adjacent to basin W (Figure 3.3-7b). During fence replacement, a biological monitor will be present to prevent construction equipment and personnel from entering the basins. If fence post hole digging activities were necessary around basins RP2 and W, the biological monitor would ensure that no digging occurred within basins RP2 and W, and that any new fence posts would be located outside of the basins. Conservation measures CM-12 and CM-13 would be implemented to prevent construction-related dust, dirt, and sediment from entering the basin during and after fence removal and replacement activities.

Short-term direct impacts to San Diego fairy shrimp-occupied basins may occur from construction through increased dust accumulation and runoff, erosion, and sedimentation, as well as unauthorized trespass. However, these impacts are considered minimal and not likely to occur because the Proposed Action includes BMPs such as silt fencing, straw wattles, worker environmental awareness, biological monitoring, and other conservation measures to prevent such impacts. These measures also include the creation of a nondisturbance buffer (exclusion fencing) around basins RP2 and W if the biological monitor and NBC Natural Resource Office (NRO) deem it necessary to avoid impacts.

INDIRECT IMPACTS

Potential indirect impacts to basins RP2 and W may include introduction of new weedy species. However, per CM-14, all equipment and vehicles would be thoroughly washed before entering the Proposed Action footprint to prevent the introduction of new invasive species. Additionally, per CM-15, wet season fairy shrimp surveys would be conducted the year after installation of the new perimeter fence to determine if construction activities affected basin RP2 and W.

Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

LIGHT-FOOTED RIDGWAY'S RAIL

Based on 2013 surveys, at least three pairs of Light-footed Ridgway's Rail and one individual occur (or have part of their territories) within the Proposed Action Area.

DIRECT IMPACTS

No permanent direct impacts are anticipated to Light-footed Ridgway's Rail habitat within the Proposed Action footprint. There is the potential for short-term direct impacts through minor trampling of vegetation and pruning of vegetation immediately adjacent to the existing fence due to installation of the new fence, and removal of the existing fence. There is the potential for construction noise and dust impacts during installation of the new fence, and removal of the existing fence. Impacts from vegetation trampling and construction noise would be minimized by conducting construction-related activities from September 1 through February 14 (CM-16 and CM-19), when Light-footed Ridgway's Rails are not breeding. Additionally, biological monitoring (CM-5, CM-6, and CM-20) would include environmental awareness and education for the construction workers, the continual presence of a biological monitor during activities that may affect Light-footed Ridgway's Rail habitat, and photography of before and after the fence installation and removal.

The Proposed Action Area is an active helicopter landing field, and the noise generated from low-flying helicopter take-off and landing activities is much greater than any fencing removal or replacement activities. Therefore, any noise generated from fence removal and replacement equipment (backhoe with auger attachment, concrete truck, etc.) would be substantially less than a low-flying helicopter and is not likely to cause additional noise impacts.

There is the potential for a short-term direct effect resulting from staged and stored construction equipment that could provide supplemental perches for avian predators. Measure CM-18 would minimize this effect by requiring that all staged and stored construction equipment when not in use (such as during weekends or periods of prolonged inactivity) be at least 500 feet away from Light-footed Ridgway's Rail habitat.

Additionally, the potential exists for increased trash during construction to attract avian predators such as Common Ravens, which may prey on Light-footed Ridgway's Rail chicks. Biological monitoring and environmental awareness and education for the construction workers as specified in CM-11 would ensure that trash is picked up and removed during construction and would minimize this potential effect.

INDIRECT IMPACTS

There is a potential for long-term indirect impacts to Light-footed Ridgway's Rail through avian predators perching on the replacement fence. This effect would be reduced through the installation of anti-perching devices that top the fence posts or outrigger arms per CM-17. Additionally, the existing fence is being replaced with a similar type of fence, and no new length of fencing would be added from what is currently

in place. The presence of the new fence is not likely to cause additional long-term or short-term impacts to Light-footed Ridgway's Rails beyond what is currently in place.

Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

LEAST BELL'S VIREO

Based on historical data from 2009, the closest Least Bell's Vireo territory with one pair of birds was located adjacent to the southeastern corner of the Proposed Action footprint (U.S. Navy 2011a) as shown in Figure 3.3-8. However, this species has not been found during more recent project surveys in 2012 and 2015. Suitable nesting habitat extends up to the southern boundary of the perimeter fence and is located within the Proposed Action Area.

DIRECT IMPACTS

There would be permanent direct impacts to 0.03 acre of Arroyo Willow Alliance that is suitable to support Least Bell's Vireo (Figure 3.3-9). This vegetation is growing up directly against the existing fenceline and needs to be trimmed back 20 feet to maintain the AT/FP buffer along the outside of the fenceline. Additionally, the Navy's commitment to Least Bell's Vireo conservation and measures are outlined in the INRMP (U.S. Navy 2013) that include habitat enhancement, nonnative floral species removal, and monitoring and removal of Brown-headed Cowbirds (*Molothrus ater*). These measures would be implemented and are anticipated to reduce impacts to Least Bell's Vireo for the loss of 0.03 acre of suitable habitat.

There is the potential that habitat enhancement and nonnative floral species removal conducted to offset impacts from removal of 0.03 acre of suitable habitat may benefit Least Bell's Vireo. Through removal of nonnative floral species, native species that may provide suitable nesting and foraging habitat for Least Bell's Vireo may grow in areas that were previously unsuitable.

Short-term direct impacts to Least Bell's Vireo within the Proposed Action Area may occur and include construction-generated fugitive dust, construction-related noise, additional perch locations for avian predators from construction equipment, and unauthorized trespass into suitable habitat. All these potential impacts are anticipated to be minimal if construction occurs during the nonbreeding season when Least Bell's Vireo are not present in the riparian habitat. Least Bell's Vireo generally begins arriving on breeding grounds as early as mid-March and begin nesting in early April. If vegetation removal, fence removal, and new fence installation are conducted before April 1 (as specified in CM-21), then no short-term direct impacts to Least Bell's Vireo are anticipated.

INDIRECT IMPACTS

Potential long-term indirect impacts caused by the Proposed Action may include introduction of invasive plant species into newly disturbed areas that spread into adjacent undisturbed areas. This may occur during fence replacement activities, which may create disturbance that weedy species thrive on. Measure CM-10 would limit the spread of new weedy species by requiring equipment and/or vehicles to be clean and free of mud, dirt, and weeds before entering NOLF IB. Vehicles would need to be washed before entering the Proposed Action footprint, and a qualified biologist would monitor the fenceline to ensure that weedy species are not spreading into native vegetation communities as a result of the Proposed Action.

Despite the removal of 0.03 acre of suitable Least Bell's Vireo habitat, the conservation measures proposed would minimize potential impacts to Least Bell's Vireo. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

Nonfederally Listed Rare Wildlife

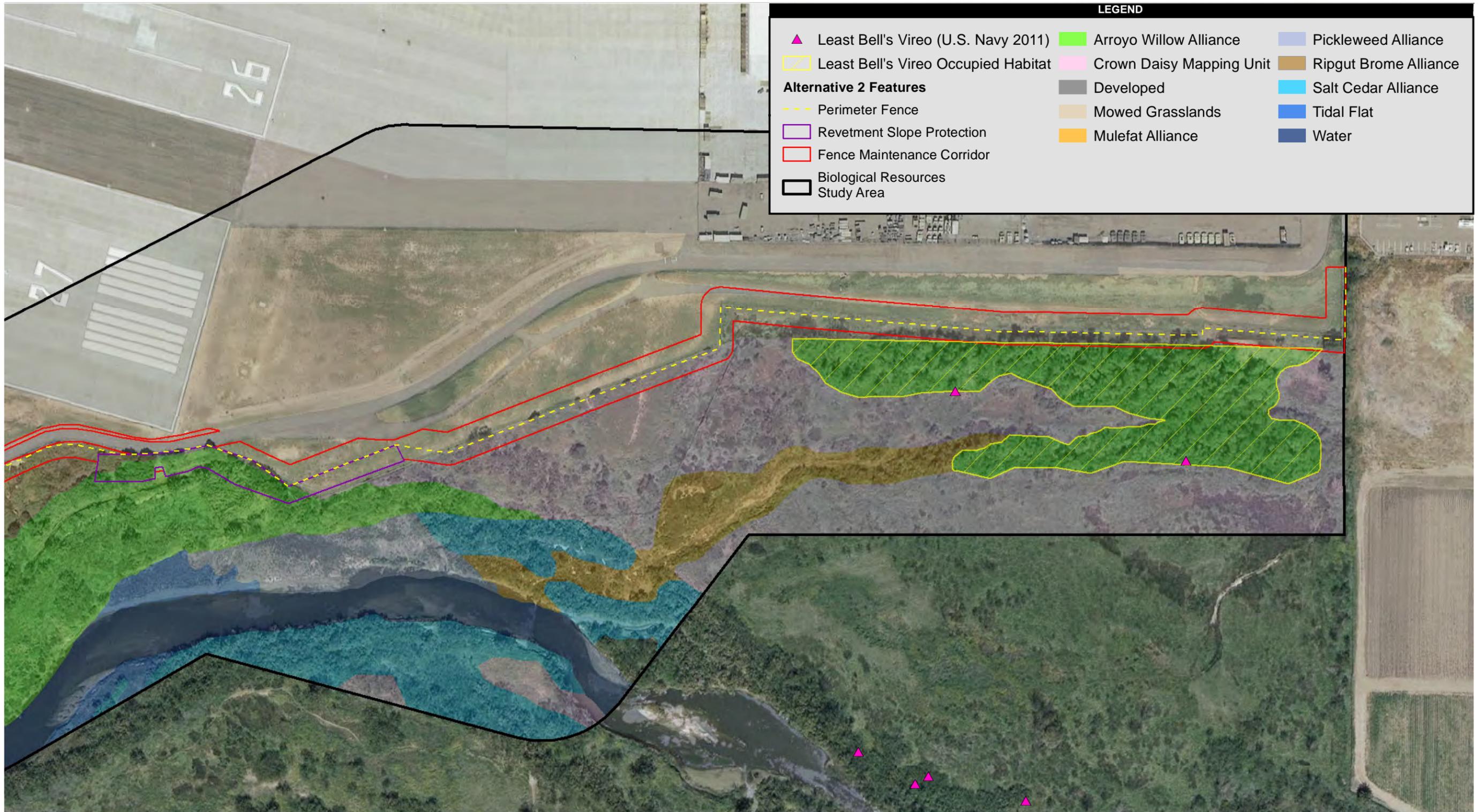
Several avian species are known to forage, breed, or winter in and around the Proposed Action Area. These species are protected by the Migratory Bird Treaty Act (MBTA) and the conservation measures for Least Bell's Vireo and Light-footed Ridgway's Rail are anticipated to avoid and minimize potential impacts to these nonfederally listed rare avian species.

DIRECT IMPACTS

Potential direct impacts to nonfederally listed sensitive wildlife, including migratory bird species covered under the MBTA, may occur through minor removal and trampling of habitat during fence repair or replacement. Additionally, the removal of 0.03 of Arroyo Willow Alliance to comply with AT/FP requirements would be a direct impact to any nesting birds in that habitat. Removal of habitat during the breeding season for nesting birds is prohibited under the MBTA. Project design measures and project-incorporated measures during construction activities (e.g., vegetation clearing to occur outside of the nesting season, minimizing construction activities during the breeding season, and monitoring by a qualified biologist) would minimize potential impacts.

INDIRECT IMPACTS

Temporary and permanent indirect impacts (see introduction to Section 4.3.1) could occur to nonfederally listed sensitive wildlife, including migratory bird species covered under the MBTA, present in the buffer area. Project design measures and standard BMPs as described in at the end of Section 3.3.3.2 would avoid and minimize potential impacts.



Source: LandisCor 2010; AECOM 2015; Merkel 2011; U.S. Navy 2011

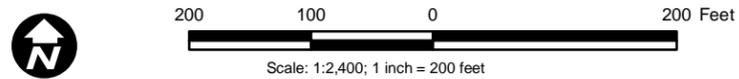


Figure 3.3-9
Proposed Action Area Effects

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Wildlife Corridors

There are no anticipated direct or indirect impacts to the wildlife corridor along the Tijuana River, as the existing fence will be repaired or sections replaced in the current location and no additional fencing is proposed beyond what is currently in place.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

WATERS OF THE U.S.

Unavoidable impacts to federally jurisdictional wetlands (as well as other waters of the U.S.) would require compensatory mitigation for both temporary and permanent impacts, as well as the following authorizations and permits by regulatory federal and state agencies: USACE CWA Section 404 Permit for placement of dredged or fill material within waters of the U.S. and RWQCB CWA Section 401 state water quality certification for an action that may result in degradation of waters of the state. It is anticipated that USACE may recommend authorizing this project under the CWA Section 404 Individual Permit (IP) Program (once a CWA Section 401 Water Quality Certification has been issued by RWQCB [Region 9]).

CWA Section 404 authorization through the IP program is for the loss of greater than 0.5 acre of jurisdictional waters resulting from the discharge of dredge or fill material.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to biological resources:

GENERAL CONSERVATION MEASURES

The following conservation measures were developed to reduce effects to biological resources. These measures are in compliance with the current NBC INRMP (U.S. Navy 2013).

- CM-1 If, during the design phase of the Proposed Action, ground-disturbing activity within the footprint, such as geological testing, is conducted, NBC NRO would be notified at least 15 days before the activity is scheduled to occur. NBC NRO approval would be required for any such activity, and the location of the activity would be reviewed to determine if it should be monitored by a biological monitor who is approved by NBC NRO because the location is near a sensitive biological resource. Monitoring of such sites should occur to ensure minimal damage to sensitive resources and adequate restoration of disturbed areas. All temporary impacts associated with the geotechnical boring surveys would remain within the footprint of the project area, as described during the consultation. The biological monitors would work

with the boring crews to avoid and minimize risks to listed resources to the maximum extent practicable, including approving driving routes to reach the boring sites. If it is determined that the geotechnical borings would potentially result in permanent effects to listed species, NBC NRO would coordinate accordingly with USFWS. If ground-disturbing activity would take place outside of project limits as described in this EA, an analysis of potential effects to listed species would be required and additional consultation with USFWS would occur for areas outside those described in this EA.

- CM-2 All construction would take place within the Proposed Action footprint defined in the EA; the footprint would be clearly delineated with stakes or other markings. If unforeseen conditions arise, the Navy would be notified to take appropriate action. Contractor(s) would be informed that construction activity must be confined within established limits. Contractors would be responsible for nondiscretionary compensation for direct effects to federally listed species and their habitats that occur as a direct result of construction activities outside of the project construction limits. Compensation requirements would be determined by the Navy in coordination with USFWS.
- CM-3 Contractor(s) would be provided with digital files showing the project limits used for the environmental analyses in the final version of the EA (and the incorporated Biological Assessment [BA]). Digital files and hardcopy maps would include the locations of federally listed species and sensitive habitats (including vernal pools). Contractor(s) would be required to coordinate with NBC NRO during design and construction to ensure that all equipment, vehicles, and personnel stay within the limits identified.
- CM-4 Conservation measures adopted as part of the Proposed Action include, but are not limited to, worker environmental protection briefings, signs, markers, protective fencing, exclusion fencing, biological monitoring, erosion and sedimentation prevention, noise baffling, and restoration of native plant community and cover type areas temporarily affected.
- CM-5 A qualified project biologist contracted by the Navy and approved by NBC NRO would ensure compliance with the conservation measures, including any required surveys and monitoring activities, and that all construction personnel remain within the limits of the Proposed Action footprint for the duration of project activities. Familiarity with the individual federally listed species and associated habitats would be required for all workers. Different project biologists may be designated for specific measures based on the qualifications necessary to satisfy the specific measure. If multiple project biologists are required, their activities would be coordinated through one primary project biologist. The project biologist(s) would have the experience and training necessary to conduct tasks described in this EA. Minimum standards for experience and training would be determined in advance by the Navy and would be dependent on the specific task being addressed by the biologist. A statement of qualifications, including a resume of experience and training for each designated project biologist, would be submitted for review and approval to NBC NRO. Generally, when

- a qualified biologist is needed, the biologist would (1) be familiar with the federally listed species and associated habitats that require the survey or monitoring activity; (2) have a bachelor's degree with an emphasis in ecology, wildlife science, or related science; and (3) have previous experience with applying the terms and conditions of a Biological Opinion (BO). In addition, where applicable, the qualified biologist would possess a Section 10(a)(1)(A) permit specific to the species and type of surveying or monitoring required. The biologist's resume, qualifications statement, and permit number, if required, would be submitted to NBC NRO. The correct number of appropriately trained biological monitoring staff would be present during all ground-disturbing construction (pre-construction, construction, and post-construction) activities (i.e., vegetation clearing, grading, fence post hole digging, drilling) to ensure required conservation measures and BO measures are carried out. A "qualified biologist" is hereafter referred to as "project biologist."
- CM-6 The project biologist would monitor construction activities to ensure compliance with required conservation measures, and would keep the project manager and NBC NRO informed about construction activities that may threaten sensitive biological resources. The project biologist would record daily construction activities and provide an electronic version of all weekly biological monitoring reports to NBC NRO and the Navy Construction Manager. The project biologist would have the ability to halt activities to avoid adverse effects to listed species and occupied habitat.
- CM-7 All construction personnel would receive environmental training before commencing work. All construction crews would be briefed on the resources and conservation measures involved in the Proposed Action and the requirements and boundaries of the Proposed Action. Environmental training would include a description of sensitive species and habitats potentially occurring on or near the Proposed Action, details on each species' habitat requirements, the protective measures to be implemented for each species, the role of the project biologist and the responsibilities of those on-site to protect biological resources, the importance of complying with conservation measures, the method for reporting problems, and the steps to take for problem resolution.
- CM-8 Construction work would generally take place during the daytime, and nighttime construction would not occur.
- CM-9 If it is determined that a listed species is harmed, the action and condition of the individual plants or animals affected would be reported immediately to NBC NRO and any necessary follow-up steps would be implemented (such as taking the injured animal to an approved wildlife rehabilitation facility, and NBC NRO would notify USFWS).
- CM-10 To comply with Executive Order (EO) 13112, National Invasive Species Act, Federal Noxious Weed Act, and Noxious Plant Control Act, construction contractors would ensure that all equipment and/or vehicles would be clean and free of mud, dirt, and weeds before

entering NOLF IB. When washing wheeled vehicles, the front wheels would be turned from lock-to-lock to allow for exposure of surfaces that may hold weed seeds. Invasive plants with an overall moderate or high ranking in the most current California Invasive Plant Council Inventory (Cal-IPC) would be considered “weeds.” The designated project biologist would be knowledgeable of and able to identify weed species listed in the Cal-IPC. Additional qualifications may be specified by NBC NRO for the project biologist handling weed management. The project biologist would report all new weed species invasions (whether new to NOLF IB or new to the Proposed Action footprint) to NBC NRO.

- CM-11 All trash generated from construction of the Proposed Action would be contained within covered, secured trash bins that are inaccessible to wildlife. All exposed food waste or trash generated from food products (e.g., wrappers, food containers) would be removed from the site on a daily basis to prevent attraction of predators (e.g., American Crow [*Corvus brachyrhynchos*] or Common Raven [*Corvus corax*] and mammalian scavengers, such as rats [*Rattus* species], raccoons [*Procyon lotor*], and skunks [*Mephitis mephitis*]).

SPECIES-SPECIFIC CONSERVATION MEASURES

There are no species-specific conservation measures for salt marsh bird’s beak as the general measures listed above are anticipated to avoid and minimize any potential effects to this species.

SAN DIEGO FAIRY SHRIMP

- CM-12 Minimization would occur through BMPs for dust and erosion control. NBC NRO would review specific BMPs (e.g., straw wattles, sand bags, jute netting, sediment fencing intended to protect occupied basins) before measures are implemented to avoid potential adverse effects (e.g., altered hydrologic regime) of the BMP and determine whether special post-BMP measures are warranted (e.g., revegetation of areas temporarily impacted). The project biologist would be present during post hole digging activities for fence installation to ensure that equipment did not encroach into occupied basins and to ensure that any BMPs were fully functional. Any fence post hole digging would not take place within RP2.
- CM-13 San Diego fairy shrimp-occupied basins within 250 feet of the Proposed Action footprint would be identified on project plans and, if determined necessary by NBC NRO or the project biologist, occupied habitat would be clearly indicated in the field with markers or exclusion fencing. Known populations and restricted areas would be monitored by the project biologist during construction, as determined necessary by NBC NRO. If deemed necessary, a nondisturbance buffer would be established around each vernal pool and exclusion fencing, markers, or BMPs would be established around the nondisturbance buffers to minimize construction-related runoff and sedimentation from entering the pools.

- CM-14 All construction personnel, equipment, and/or vehicles would be thoroughly washed or cleaned before entering NOLF IB vernal pool areas. Construction access into vernal pool areas would be reviewed by NBC NRO to ensure that any dried mud or dirt from boots or equipment would be removed prior to entering and upon exiting NOLF IB vernal pool areas, particularly during the wet season (generally November through April), to prevent the spread of fairy shrimp cysts within or outside of NOLF IB.
- CM-15 After fence replacement has occurred, basin RP2 will have a complete protocol survey conducted to determine if the basin is still ponding and if San Diego fairy shrimp are still present. This consists of either one wet and one dry season survey, or two wet season surveys within a 5-year period, as specified in the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996).

LIGHT-FOOTED RIDGWAY'S RAIL

- CM-16 Portions of the western and southern components of the NOLF IB perimeter fence are considered occupied by Light-footed Ridgway's Rail. All construction within portions of occupied habitat and within 300 feet of occupied habitat would take place outside of the Light-footed Ridgway's Rail nesting season (September 1 through February 14).
- CM-17 Anti-perching devices would be installed along the top of the new fence where possible, particularly along outrigger arms. This would be restricted to the area along the southern and western fenceline adjacent to occupied Light-footed Ridgway's Rail habitat. This is to prevent avian predators from perching along the fence posts and preying upon Light-footed Ridgway's Rails. Anti-perching devices would be approved in advance by NBC NRO.
- CM-18 During construction, equipment (such as cranes) that could provide temporary supplemental perches for birds of prey (such as hawks, falcons, kites, harriers, and owls) and predatory birds (such as Corvids) would be staged and stored when not in use (such as during weekends or periods of prolonged inactivity), at least 500 feet away from Light-footed Ridgway's Rail habitat (which generally occurs along the entire western and southern fenceline). Equipment staging and laydown areas would be approved in advance by NBC NRO to ensure they do not encourage predatory avian species from perching on the staged equipment. During active construction, materials and equipment staging would occur in unvegetated areas and along roadways. The project biologist would monitor construction activities to determine if equipment is providing supplemental perches and make recommendations to reduce perching opportunities for avian predators.
- CM-19 No salt marsh vegetation would be permanently removed from outside the existing fenceline within the Tijuana Slough NWR. It may be necessary to trim vegetation (growing through the existing fence) or trample salt marsh vegetation (generally within 1 foot of the existing fence)

along the outside of the fenceline during fence removal and installation. This is anticipated to grow back naturally following fence installation.

Limited removal of large isolated shrubs (generally 4 feet or taller) and nonnative vegetation would be permitted within the 20-foot clear zone along the outside of the western and southern fenceline to increase security. Any vegetation removal, trampling, or modification would be permitted only during the nonbreeding season, which is generally September 1 through February 14.

- CM-20 The worker education program outlined in CM-7 will include education regarding Light-footed Ridgway's Rails and information regarding conservation measures (such as remaining outside the Tijuana Slough NWR and minimizing trampling of vegetation adjacent to the fenceline).

LEAST BELL'S VIREO

- CM-21 No construction activities would be permitted along Segments 4 and 5 of the Proposed Action Area during the breeding season for Least Bell's Vireo which generally extends from approximately April 1 through July 31. If determined necessary by NBC NRO, it may be necessary for the project biologist or a biological monitor to conduct a survey for Least Bell's Vireo if vegetation removal is anticipated to occur up to 2 weeks prior to April 1 because Least Bell's Vireo may begin nesting early in some years.

3.3.3.3 Alternative 2

Impacts

Plant Communities and Other Cover Types

Impacts are similar to those listed for Alternative 1; however, the entire perimeter fence would be replaced, the fence would be realigned both on a temporary and a permanent basis in limited areas, and a slope revetment would be installed to prevent erosion to the runway from the Tijuana River. The acreages of plant communities and cover types that would be permanently and temporarily impacted are listed in Table 3.3-10.

The slope revetment would involve the permanent removal of 0.37 acre of habitat that is not occupied by any listed species. To comply with AT/FP regulations, 0.03 acre of Arroyo Willow Alliance would be removed that is suitable to support the Least Bell's Vireo. The staging areas would also involve temporary disturbance to 2.62 acres of habitat that is composed of developed and disturbed areas (mowed grasslands and crown daisy mapping unit).

**Table 3.3-10
Proposed Action Footprint Permanent and Temporary Impacts**

Plant Communities and Other Cover Types	Permanent Acreage	Temporary Acreage
Slope Revetment	0.37	0
Arroyo Willow Alliance (<i>Salix lasiolepis</i> Alliance)	0.21	0
Developed Areas	0.01	0
Mowed Grasslands	0.11	0
Ripgut Brome Alliance (<i>Bromus diandrus</i> Alliance)	0.03	0
Staging Areas¹	0	2.62
Crown Daisy Mapping Unit (<i>Glebionis coronaria</i>) Mapping Unit)	0	0.01
Developed Areas	0	2.43
Mowed Grasslands	0	0.18
20-foot Outside Fenceline	0.03	0
Arroyo Willow Alliance (<i>Salix lasiolepis</i> Alliance) ²	0.03	0

¹ Includes two construction staging areas.

² This acreage of Arroyo Willow Alliance is suitable to support Least Bell's Vireo.

Waters of the U.S.

DIRECT IMPACTS

A total of 0.050 acre of USACE jurisdictional tidal wetlands would be directly impacted by Alternative 2 (0.043 acre of permanent impacts; 0.007 acre of temporary impacts). A total of 0.008 acre of USACE jurisdictional nontidal wetlands would be directly impacted by Alternative 2 (0.073 acre of permanent impacts; 0.007 acre of temporary impacts). A total of 0.472 acre of USACE jurisdictional tidal nonwetland waters would be permanently, directly impacted by Alternative 2. A total of 0.007 acre of USACE jurisdictional nontidal nonwetland waters would be directly impacted by Alternative 2 (0.006 acre of permanent impacts; 0.001 acre of temporary impacts). In addition, another 205.6 linear feet of USACE jurisdictional nontidal nonwetland waters would be directly impacted by Alternative 2 (203.9 linear feet of permanent impacts; 1.6 linear feet of temporary impacts). A total of 0.559 acre of jurisdictional waters of the U.S. would be impacted (0.551 acre of permanent impacts; 0.008 acre of temporary impacts) by Alternative 2. Table 3.3-11 distinguishes the USACE jurisdictional status of the vegetation communities, and the impacts to each from Alternative 2.

Conservation measures CM-4, CM-6, and C-19 described in detail at the end of Section 3.3.3.2 above would avoid and minimize potential impacts to jurisdictional habitats.

**Table 3.3-11
Proposed Action Footprint Permanent and Temporary Direct Impacts
to USACE Jurisdictional Waters of the U.S.**

Vegetation Community	Permanent	Temporary	Total
Jurisdictional Tidal Wetlands			
Crown daisy mapping unit ¹	0	0.007	0.007
Mowed grasslands ²	0.019	0	0.019
Developed ²	0.024	0	0.024
Total	0.043	0.007	0.050
Jurisdictional Nontidal Wetland			
Arroyo willow alliance ³	0.030	0	0.030
Total	0.030	0	0.030
Grand Total Wetlands	0.073	0.007	0.080
Jurisdictional Tidal Nonwetland Waters			
Alkali heath alliance ⁴	0.103	0	0.103
Mowed grasslands ⁴	0.034	0	0.034
Bermuda grass alliance ⁵	0.002	0	0.002
Rye grass alliance ⁴	0.001	0	0.001
Developed ⁶	0.332	0	0.332
Total	0.472	0	0.472
Jurisdictional Nontidal Nonwetland Waters			
Mowed grasslands ⁴	0.006	0.001	0.007
Total⁷	0.006	0.001	0.007
Total Nonwetland Waters⁷	0.478	0.001	0.479
Total Jurisdictional Waters of the U.S.⁷	0.551	0.008	0.559

¹ This habitat was mapped as coastal salt marsh by Merkel & Associates (2012).

² This habitat was as disturbed habitat by Merkel & Associates (2012).

³ This habitat was mapped as southern riparian woodland by Merkel & Associates (2012).

⁴ This habitat was mapped as nonnative grasslands by Merkel & Associates (2012).

⁵ This habitat was mapped as saltgrass grassland by Merkel & Associates (2012).

⁶ This habitat was mapped as nonnative grassland (0.182 acre) and disturbed habitat (0.150 acre) by Merkel & Associates (2012).

⁷ Totals do not include 203.9 linear feet of permanent impacts and 1.6 linear feet of temporary impacts of nontidal nonwetland waters.

INDIRECT IMPACTS

Temporary and permanent indirect impacts to jurisdictional habitats would be identical to those described for Alternative 1 in Section 3.3.3.2 above. Conservation measures CM-4 and CM-6 described in at the end of Section 3.3.3-2 above would avoid and minimize potential impacts to jurisdictional habitats.

Federally Listed Plants

SALT MARSH BIRD'S BEAK

The same direct and indirect impacts as those listed above in Section 3.3.3.2 for Alternative 1 are expected. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

Nonfederally Listed Rare Plants

The same direct and indirect impacts as those listed above in Section 3.3.3.2 for Alternative 1 are expected. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

Federally Listed Wildlife

SAN DIEGO FAIRY SHRIMP

The same direct and indirect impacts as those listed above in Section 3.3.2.2 for Alternative 1 are expected. However, instead of potentially repairing or replacing sections of the existing perimeter fence, the entire fence would be replaced. This would be potentially more disturbing for basins RP2 and W, particularly if interim fencing is placed nearby as shown in Figure 3.3-7b. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

LIGHT-FOOTED RIDGWAY'S RAIL

The same direct and indirect impacts as those listed above in Section 3.3.2.2 for Alternative 1 are expected. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

LEAST BELL'S VIREO

The same direct and indirect impacts as those listed above in Section 3.3.2.2 for Alternative 1 are expected. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

NONFEDERALLY LISTED RARE WILDLIFE

The same direct and indirect impacts as those listed above in Section 3.3.3.2 for Alternative 1 are expected. Given the potential impacts and conservation measures, impacts would be avoided and minimized through implementation of measures listed at the end of Section 3.3.3.2.

WILDLIFE CORRIDORS

No direct or indirect impacts to the wildlife corridor along the Tijuana River are anticipated, as the existing fence will be replaced in its current location or slightly north of its current location farther away from the Tijuana River, and no additional fencing is proposed beyond what is currently in place.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

WATERS OF THE U.S.

Mitigation measures for unavoidable impacts to waters of the U.S. would be the same as for Alternative 1, listed above.

Impact Avoidance and Minimization Measures

The impact avoidance and minimization measures would be the same as for Alternative 1, listed above.

3.3.3.4 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Baseline biological resources conditions would remain unchanged. Therefore, no impacts to biological resources would occur with implementation of the No Action Alternative.

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No avoidance and minimization measures are proposed.

3.3.4 Unavoidable Adverse Environmental Impacts

No unavoidable adverse impacts on biological resources would occur as a result of implementation of any of the alternatives.

3.3.5 Summary of Impacts

Table 3.3-12 summarizes the impacts of the two action alternatives and the No Action Alternative.

**Table 3.3-12
Summary of Biological Resource Impacts**

Alternative	Impacts	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance Alternative	<p>There would be a permanent direct impact to 0.03 acre of suitable habitat for Least Bell’s Vireo.</p> <p>Temporary direct impacts to San Diego fairy shrimp-occupied basins, Least Bell’s Vireo, and Light-footed Ridgway’s Rail may include construction-related noise and dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal, and increased predation by perch availability on construction equipment and materials storage.</p> <p>Permanent indirect impacts to flora and faunal resources may include the introduction of invasive plant species into newly disturbed areas that spread into adjacent undisturbed areas and predation by predators perching on the new fence.</p> <p>Temporary direct impacts to waters of the U.S. may include construction-related dust, erosion, sedimentation, unauthorized trespass, potential for vegetation trampling and minor vegetation trimming during fence installation and removal.</p> <p>Permanent indirect impacts to waters of the U.S. may include the introduction of invasive plant species into areas newly disturbed by fence replacement activities that spread into adjacent undisturbed areas (that may be downstream of the fence replacement location).</p>	<p><u>Mitigation Measures:</u> Unavoidable impacts to waters of the U.S. would require compensatory mitigation for both temporary and permanent impacts, as well as a USACE CWA Section 404 Permit for placement of dredged or fill material within waters of the U.S. and a RWQCB CWA Section 401 state water quality certification for an action that may result in degradation of waters of the state.</p> <p><u>Impact Avoidance and Minimization Measures:</u> A total of 21 special conservation and construction measures for biological resources listed at the end of Section 3.3.3.2 (and in Appendix B, Sections 2.4 and 2.5) would be incorporated as part of the Proposed Action and would avoid and/or minimize many potential direct and indirect impacts to sensitive biological resources. These include general conservation measures (conservation measure [CM] 1 through CM-11) as well as species-specific conservation measures for San Diego fairy shrimp (CM-12 through CM-15), Light-footed Ridgway’s Rail (CM-16 through CM-20), and Least Bell’s Vireo (CM-21).</p>
Alternative 2 – Improved Fence Alignment and Structural Improvements Alternative	The biological resources impacts would be the same as Alternative 1.	<p><u>Mitigation Measures:</u> Measures for unavoidable impacts to waters of the U.S. would be the same as for Alternative 1.</p> <p><u>Impact Avoidance and Minimization Measures:</u> Impact avoidance and minimization measures would be the same as for Alternative 1.</p>
No Action Alternative	No impacts to biological resources.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> None</p>

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3.4 CULTURAL RESOURCES

This section provides brief descriptions of the ROI for cultural resources, regulatory and cultural setting, and the specific cultural resources that occur within the boundaries of the Proposed Action alternatives that may be directly or indirectly affected if the undertaking is implemented. Cultural resources consist of sites, Traditional Cultural Properties, buildings, structures, objects, and districts. These may be historic or prehistoric in age, or a combination of both. Historic properties are cultural resources, including those prehistoric in age, that are eligible for or listed in the National Register of Historic Places (NRHP). Evaluation criteria for the NRHP include both integrity and significance as provided in 36 C.F.R. § 60.

3.4.1 Affected Environment

3.4.1.1 Region of Influence

For cultural resources, the ROI is defined as the area of potential effects (APE) for the undertaking. In accordance with Stipulation 6 of the 2014 Naval Base Coronado Programmatic Agreement (NBC PA), the Navy Region Southwest archaeologist has determined and documented the APE for the Proposed Action alternatives (the undertaking under NHPA Section 106). Under the NBC PA, determination of the undertaking's APE did not require individual consultation with the California State Historic Preservation Officer (SHPO) or other Section 106 consulting parties. As stipulated in the NBC PA, the APE includes the project footprint boundary, including any associated laydown or staging areas, and a 30-meter buffer around each portion of the footprint boundary where ground disturbance would occur.

3.4.1.2 Regulatory Setting

Regulatory requirements concerning cultural resources on federal property are contained in Section 106 of the NHPA, 16 U.S.C. §§ 470–470w, Native American Graves Protection and Repatriation Act (NAGPRA), and in NEPA (42 U.S.C. §§ 4321 et seq.). Added direction is provided by DoD instructions (DODINST 4715.3), and DoN instructions (NAVFACINST 11010.45, and Secretary of the Navy Instruction [SECNAVINST] 11010.14A) and directives (DoD Directive 4710.1).

3.4.1.3 Regional Prehistory and History

Prehistoric Period

Despite decades of research, the early prehistory of coastal southern California remains poorly understood. The archaeological record does reveal that humans had appeared by about 13,000 years ago on the Channel Islands, where they lived primarily by fishing and shellfishing. These early island components are of interest in that they seem to reflect fully developed maritime economies that were distinct from, but roughly contemporaneous with, the Clovis tradition represented throughout much of interior North America. Identified late Pleistocene components are lacking on the mainland coast of southern California, although several sites have yielded calibrated dates in excess of 9,000 years

(Erlandson et al. 2007:58–59). Archaeological complexes represented at these early sites include the San Dieguito complex with its finely worked scrapers and leaf-shaped and stemmed projectile points (Warren 1968; Warren et al. 1993), and the La Jolla complex represented by simple flaked cobble tools, relatively abundant groundstone, and flexed burials. Although the temporal and cultural relationship between San Dieguito and La Jolla continues to be debated, it is increasingly clear that human populations were well established along the coast of southern California very early in the Holocene.

During the early Holocene, sea levels continued to rise, as they had been since the last glacial maximum at about 18,000 years ago. By around 8,000 years before present (B.P.), however, it appears that sea level rise had begun to slow to a rate of about 0.25 meter per century, a process that allowed the formation of a complex mosaic of productive lagoon and estuary habitats at many locations along the San Diego County coastline (Masters and Aiello 2007; Masters and Gallegos 1997). These seem to have supported a significant coastal population during the early Archaic, as numerous coastal components have been found that date to this interval. Archaeological remains in these components typically represent the La Jolla complex and often contain abundant shellfish and fish remains, along with flaked cobble tools, basin metates, manos, discoidals, stone balls, and flexed burials.

The transition to the Late Prehistoric beginning around 1,300 years ago is marked by the appearance of small projectile points, ceramics, and cremation burial practices. In southern San Diego County, the Late Prehistoric is represented mainly by the Cuyamaca complex, originally defined by True (1970). True noted an artifact assemblage similar to the San Luis Rey complex represented in northern San Diego County, but distinguished by a steatite industry, a wide range of ceramic vessel types, and a higher incidence of small side-notched points and some flaked stone tool types (scrapers, scraper planes, and choppers). True also attributed a higher incidence of groundstone milling implements to the Cuyamaca complex. Burial practices involved cemetery areas separate from living areas, cremations in ceramic vessels, specialized grave goods, and the use of grave markers (True 1970).

Ethnohistory

Europeans first entered the project region in 1769, when the members of the Spanish Portola expedition crossed through the area en route from Mexico to Monterey (Brown 2001). Dual military and religious contingents established a series of missions in Alta California between San Diego and Monterey. By that time, the Proposed Action footprint was within the territory of a loosely integrated cultural group historically known as the Kumeyaay, or Southern Diegueño. The Kumeyaay were organized into bands that followed a seasonal round of resource exploitation. Subsistence was plant-based, supplemented by game and shellfish on the coast. Acorns from a variety of oaks (*Quercus* spp.) were a staple. A variety of seeds also formed an important part of the diet, including chia (*Salvia columbarie*), buckwheat (*Eriogonum fasciculatum*), and grasses (*Bromus/Stipa* spp., *Hordeum* sp., *Phalaris* sp. and *Sporobolus* sp.) (Byrd and Raab 2007; Luomala 1978). Trading networks moved coastal resources such as salt and shells inland, and acorns, agave, and mesquite beans toward the coast (Luomala 1978). Major ethnohistoric coastal villages were present at the junction of Otay River with southeast San Diego Bay (*La Punta*) (Gallegos et al. 1998) and on the Sweetwater River (*Pu-shuyi*) (Kroeber 1925).

Historic Period

The Imperial Beach area was first subdivided in the 1880s, during the initial land boom that saw extensive development throughout San Diego. In 1917, the U.S. Army established the current site of NOLF IB as an aviation field, which was used for training during World War I. Major construction of the facility's buildings, as well as the current runway configuration, took place during World War II. It was designated as an Outlying Landing Field in 1975 (Pumphrey et al. 2010).

3.4.1.4 Identification of Historic Properties

No historic structures have been identified at NOLF IB (Chambers and Yatsko 1986; JRP 2000; Pumphrey et al. 2011), and consultation with Kumeyaay tribes under the NBC PA has not identified any Traditional Cultural Properties or other resources of concern to Native Americans. However, previous archaeological investigations have identified four cultural resources within the APE, all consisting of prehistoric archaeological sites. Two of these (CA-SDI-9181 and CA-SDI-9182) were recorded during a 1981 survey of the facility (Chambers 1982), while two were identified during recent examinations by Navy Region Southwest archaeologists in support of the Proposed Action (Yatsko personal communication 2015). All four of these sites are located within the APE along the southern perimeter fence.

CA-SDI-9181

Located at the southwestern corner of the NOLF IB facility, this site is an extensive but sparse scatter of artifacts and marine shell distributed along the terrace overlooking the Tijuana River (Chambers 1982). As currently recorded, the site measures approximately 900 meters east-west and 300 meters north-south, with roughly the eastern half located within the NOLF IB facility. Examination of the site by AECOM and the Navy Region Southwest archaeologist revealed that portion of the site within the NOLF IB facility and along the existing perimeter fence is extensively disturbed and retains limited integrity.

Because CA-SDI-9181 has not been evaluated in its entirety for NRHP eligibility, the site is assumed eligible for the purposes of Section 106 compliance for this undertaking. However, due to the high level of disturbance described above and in accordance with the NBC PA, the Navy Region Southwest archaeologist has determined that deposits within the NOLF IB facility do not contribute meaningfully to the site's eligibility for the NRHP.

CA-SDI-9182

This site was recorded in 1981 as a sparse scatter of lithic debitage and marine shell situated at the south margin of NOLF IB, along the terrace overlooking the Tijuana River (Chambers 1982). It was also noted that this site may have originally been connected to CA-SDI-9181 to the west, but that grading and other disturbance may have removed the intervening deposits. Recent examinations of this general locality in support of the Proposed Action revealed that the site area has been barricaded and has been extensively

impacted by ongoing removal of hazardous materials deriving from a past aircraft accident. Based on these impacts, the Navy Region Southwest archaeologist has determined that CA-SDI-9182 is ineligible for the NRHP.

Site NOLF IB Fence 1

Cultural deposits associated with this site are located at the south margin of NOLF IB, both on the surface of the terrace and exposed in the cut bank at the east end of the excavated depression associated with the former small arms range at this location. These deposits consist of a thin surface layer of flaked stone debitage and marine shell deriving from both estuarine and open coast habitats. The observed cultural materials extend for approximately 50 meters along the eastern edge of the excavation for the firing range. The exposure of these materials in the cut bank indicates that a large portion of the original site was removed during construction of the small arms range. Recent examinations of the cut bank as well as excavation of a 1-by-1-meter test unit at this location indicated that the site surface appears to have been truncated by grading, and that the remaining cultural materials are contained in several centimeters of disturbed and reworked soils that rest on the Pleistocene-age Bay Point Formation. Based on these impacts, the Navy Region Southwest archaeologist has determined that NOLF IB Fence 1 is ineligible for the NRHP (Yatsko, personal communication, 2015).

Site NOLF IB Fence 2

This site is a thin deposit of marine shell and flaked stone debitage at the southern margin of the NOLF IB facility. Like the sites discussed above, this deposit contains marine shells representing a variety of habitats, including open coastal contexts. Excavation of three shovel test pits at this locality by the Navy Region Southwest archaeologists in support of the Proposed Action revealed the deposit to extend only a few centimeters below the surface and to rest directly on the Bay Point formation. The presence of recent intrusive materials within the subsurface deposit indicates that this location is heavily disturbed and appears to have been partially truncated as indicated by spoil piles along the fenceline immediately to the south. Based on these impacts, the Navy Region Southwest archaeologist has determined that NOLF IB Fence 2 is ineligible for the NRHP (Yatsko, personal communication 2015).

3.4.2 Environmental Consequences

3.4.2.1 Approach to Analysis

Federal laws and regulations have established the requirements for identifying, evaluating, and mitigating impacts on cultural resources. Pertinent provisions of NHPA, Archaeological Resources Protection Act (ARPA), and NAGPRA address management and treatment of cultural resources. Provisions of NHPA are addressed in more detail below. ARPA provides for site protection through penalties for noncompliance with its statutes and provides for authorizing archaeological investigations. NAGPRA contains requirements for repatriation of Native American human remains and associated funerary objects found on federal lands.

Under NHPA, resource significance is determined on the basis of NRHP criteria (36 C.F.R. Part 60.4) in consultation with SHPO. A project affects a resource's significance when it alters the characteristics of the property that qualify it as significant under NRHP criteria. Effects may include:

- Physical destruction or damage to all or part of the resource;
- Alteration of a property in a way that is inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 C.F.R. Part 68);
- Introduction of visual, atmospheric, or audible elements that alter the setting and diminish the integrity of the property's significant features;
- Neglect of a resource, resulting in its deterioration or destruction; and
- Any change that could adversely affect the qualities that make the property significant.

Under NHPA, assessing impacts involves identifying activities that could directly or indirectly affect significant resources, identifying known or expected significant resources in the APE, and determining the level of impacts on the resources. Possible findings include no effect, no adverse effect, or an adverse effect on significant resources (36 C.F.R. Part 800.4-9).

Under NEPA, impacts on cultural resources are explicitly identified as attributes that must be addressed to determine the significance of a project's anticipated environmental effects. The potential for adverse effects on cultural resources is considered in this NEPA assessment. An adverse effect on a historic property, however, does not necessarily equate to a significant impact under NEPA. Under NEPA, a significant impact can be mitigated to less than significant through data recovery or other treatment measures. In assessing impacts on cultural resources under NEPA, 40 C.F.R. Part 1508.27 defines significance in terms of context and intensity. These elements include consideration of the impacts on the community, the importance of a site, the unique characteristics, and the severity of the impact.

3.4.2.2 Alternative 1

Impacts

The actions proposed under Alternative 1 would cause some limited disturbance to sites CA-SDI-9181, NOLF IB Fence 1, and NOLF IB Fence 2. The recorded location of CA-SDI-9182 would also be subject to limited impacts along the existing fenceline. As noted above, however, NOLF IB Fence 1, NOLF IB Fence 2, and any remaining portions of CA-SDI-9182 are ineligible for the NRHP, and the portions of CA-SDI-9181 within the APE would not contribute to the site's eligibility. Therefore, any disturbance associated with Alternative 1 would not constitute an adverse effect under Section 106 of the NHPA and would not be a significant impact under NEPA.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No impact avoidance and minimization measures are proposed.

3.4.2.3 Alternative 2

Impacts

The actions proposed under Alternative 2 would cause some limited disturbance to sites CA-SDI-9181, NOLF IB Fence 1, and NOLF IB Fence 2. The recorded location of CA-SDI-9182 would also be subject to limited impacts along the existing fenceline. As noted above, however, NOLF IB Fence 1, NOLF IB Fence 2, and any remaining portions of CA-SDI-9182 are ineligible for the NRHP, and the portions of CA-SDI-9181 within the APE would not contribute to the site's eligibility. Therefore, any disturbance associated with Alternative 2 would not constitute an adverse effect under Section 106 of the NHPA and would not be a significant impact under NEPA.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No impact avoidance and minimization measures are proposed.

3.4.2.4 No Action Alternative

Impacts

Under the No Action Alternative, the Proposed Action would not occur. Baseline cultural resources conditions would remain unchanged. Therefore, no impacts to cultural resources would occur with implementation of the No Action Alternative.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No impact avoidance and minimization measures are proposed.

3.4.3 Unavoidable Adverse Environmental Impacts

No unavoidable adverse impacts on cultural resources would occur as a result of implementation of any of the alternatives.

3.4.4 Summary of Impacts

Table 3.4-1 summarizes the impacts of the two action alternatives and the No Action Alternative.

**Table 3.4-1
Summary of Cultural Resources Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance Alternative	Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> None
Alternative 2 – Improved Fence Alignment and Structural Improvements	Direct disturbance to areas within cultural sites CA-SDI-9181, CA-SDI-9182, NOLF-IB-Fence 1, and NOLF – IB-Fence 2 would be limited to areas where cultural deposits are heavily disturbed, completely redeposited, or have been removed entirely. No adverse effects to historic properties would result from this alternative.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> None
No Action Alternative	No effects on cultural resources.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> None

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3.5 AIR QUALITY AND CLIMATE CHANGE

3.5.1 Affected Environment

3.5.1.1 Region of Influence

The ROI for air quality has both regional and local components. The regional ROI is defined by the air basin in which the Proposed Action is located; the local ROI is defined by the specific areas where local emissions sources can potentially create local concentrations of pollutant emissions in proximity to sensitive air quality receptors.

In general, the ROI for air quality varies according to the type of air pollutant. Specifically, the regional ROI for air quality is based on the type of pollutant, its emissions rates, and local and regional meteorology. Regionally, the ROI for NBC is the San Diego Air Basin (SDAB), which is contiguous with the boundaries of San Diego County. Locally, the ROI would be sensitive air quality receptors in proximity to localized concentrations of pollutant emissions.

For the action alternatives, the generation of project air pollutant and greenhouse gas (GHG) emissions would primarily be confined to the areas of project construction and operation within NOLF IB, except for offsite truck transport of construction equipment and materials. The regional air quality ROI would be within the SDAB, and the local ROI would be sensitive air quality receptors along the truck haul. The GHG ROI would be global.

3.5.1.2 Air Quality Standards and Attainment Status

The U.S. Environmental Protection Agency (USEPA) establishes National Ambient Air Quality Standards (NAAQS) for the criteria pollutants including, primarily, volatile organic compounds (VOC), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur dioxides (SO_x), suspended particulate matter (PM) equal to or less than 10 microns in size (PM₁₀), and fine PM equal to or less than 2.5 microns in size (PM_{2.5}). Specific geographic areas or air basins are classified as either “attainment” or “nonattainment” areas for each criteria pollutant based on the comparison of measured air quality data with the NAAQS. The study area is located within the SDAB, which is currently designated by USEPA as in attainment for the NAAQS of all criteria pollutants, except for ozone, which is designated as “marginal” degree of nonattainment for the 8-hour 2008 ozone standard (USEPA 2015a). Ozone is the principal component of smog, which is formed in the atmosphere through a series of reactions involving VOC and NO_x in the presence of sunlight. In addition, former nonattainment areas that have attained the NAAQS are designated as maintenance areas, such as the SDAB, which is currently designated as a maintenance area for CO (USEPA 2015a).

3.5.1.3 General Conformity

Under Section 176(c) of the CAA, the General Conformity Rule, projects using federal funds or requiring federal approval in nonattainment or maintenance areas must not (1) cause or contribute to any new violation of a NAAQS; (2) increase the frequency or severity of any existing violation; or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. USEPA, under the provisions of the CAA, requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how NAAQS are to be met in each local area. General Conformity requires that all federal actions conform to the SIP as approved or promulgated by USEPA.

General Conformity analysis focuses on the net increase in emissions compared to ongoing historical conditions. Existing SIPs are presumed to have accounted for routine, ongoing federal agency activities. General Conformity analyses are further limited to those direct and indirect emissions over which the federal agency has responsibility and control, and are not required to analyze emissions sources that are beyond the responsibility and control of the federal agency.

A federal action is exempt and considered to conform to the SIP if an applicability analysis shows that total direct and indirect net emissions from construction and operation of the action would be less than specified emission-rate thresholds, known as *de minimis* levels, which are based on the attainment/maintenance and nonattainment designations and classifications for the project area. If the emissions would exceed the *de minimis* levels, a formal air quality conformity determination is required.

In California, local air pollution control districts have the primary responsibility for developing and adopting the regional elements of the SIP. In San Diego County, the San Diego Air Pollution Control District (SDAPCD) is the agency responsible for the administration of federal and state air quality laws, regulations, and policies including enforcing NAAQS in the project area. Included in the SDAPCD's tasks are monitoring of air pollution, preparation of the SIP for the SDAB, and promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain the federal ozone standard in the county. The SIP elements are taken from the Regional Air Quality Strategy (RAQS), the SDAPCD plan for attaining the state ozone standard, which is more stringent than the federal ozone standard. The rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts (SDAPCD 2015).

3.5.1.4 NEPA Air Quality Impact Significance

Air quality impact significance under NEPA differs from General Conformity in that all criteria pollutant emissions are considered, whether in attainment or nonattainment. Therefore, NEPA significance analysis includes attainment pollutant emissions, which in the SDAB include sulfur dioxide (SO₂), PM₁₀, and PM_{2.5}, as well as the nonattainment and maintenance pollutant emissions in the SDAB of VOC, NO_x, and CO, considered under General Conformity.

3.5.1.5 Hazardous Air Pollutants

In addition to criteria pollutants, air quality regulations also focus on hazardous air pollutants (HAPs), also called toxic air contaminants (TACs), which are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. HAPs are usually present in minute quantities in ambient air; however, their high toxicity may pose a threat to public health even at low concentrations. For HAPs that may cause cancer, in general, there is no minimum concentration that does not present some risk (i.e., there is no threshold level below which adverse health impacts may not be expected to occur), which differs with the criteria air pollutants, for which acceptable levels of exposure can be determined and ambient standards have been established. USEPA and the California Air Resources Board (ARB) have ongoing programs to identify and regulate TACs, and particulate exhaust emissions from diesel-fueled engines (diesel PM) have been identified as a TAC. Diesel engines tend to produce a much higher ratio of fine particulates than other types of internal combustion engines. Health risk assessments that determine the health risks should be based on a 30-year exposure period (OEHHA 2015). However, health risk assessments should be limited to the period/duration of activities associated with the emissions activity.

Localized pollutant concentrations are of concern in proximity to people that have an increased sensitivity to air pollution, typically children and the elderly (i.e., sensitive receptors). Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, and hospitals. No sensitive receptors are located in proximity to the study area that would be impacted by Proposed Action emissions.

3.5.1.6 Greenhouse Gas Emissions

According to the Intergovernmental Panel on Climate Change (IPCC), most of the warming of the earth from GHGs, from pre-industrial times to 1950, was produced by variations in natural phenomena, such as solar radiation and volcanoes, which also included a small cooling effect (IPCC 2013). However, from 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase. Global surface temperature has increased by approximately 1.53 degrees Fahrenheit (°F) over the last 140 years (IPCC 2013); however, the rate of increase in global average surface temperature has not been consistent. The last three decades have warmed at a much faster rate per decade (IPCC 2013).

Each GHG is assigned a global warming potential (GWP), which is the ability of a gas or aerosol to trap heat in the atmosphere. The GWP rating system is standardized to carbon dioxide (CO₂), which has a value of 1. For example, methane (CH₄) has a GWP of 21, which means that it has a global warming effect 21 times greater than CO₂ on an equal-mass basis (IPCC 2007). To simplify GHG analyses, total GHG emissions from a source are often expressed as a CO₂ equivalent (CO₂e). The CO₂e is calculated by multiplying the emissions of each GHG by its GWP and adding the results together to produce a single, combined emission rate representing all GHGs. While CH₄ and nitrous oxide (N₂O) have much higher

GWPs than CO₂, CO₂ is emitted in such higher quantities that it is the overwhelming contributor to CO₂e from both natural processes and human activities.

To address GHG emissions at the federal level, federal agencies on a national scale address emissions of GHGs by reporting and meeting reductions mandated in federal laws, EOs, and agency policies. On October 5, 2009, EO 13514 addressed the need to set measureable environmental performance goals for federal agencies. On January 29, 2010, President Obama announced that the federal government would reduce its GHG emissions by 28 percent by 2020. To achieve this goal, each federal agency must develop a sustainability plan that defines how sustainability goals will be met, energy use will be reduced, long-term savings will be achieved, taxpayer dollars will be saved, and local clean energy jobs will be created. On March 19, 2015, EO 13693, *Planning for Federal Sustainability in the Next Decade*, set a goal of reducing federal agency GHG emissions by 40 percent over the next decade. On December 18, 2014, CEQ released revised draft guidance that applies to all proposed federal agency actions, including land and resource management actions, which explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change for the environmental effects of a proposed action (CEQ 2014). The guidance recommends that agencies consider 25,000 metric tons of CO₂e on an annual basis as a reference point below which a quantitative analysis of GHG emissions is not recommended unless it is easily accomplished based on available tools and data (CEQ 2014).

In California, EO S-3-05 proclaimed California vulnerable to the impacts of climate change, as increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbating California's air quality problems, and potentially cause a rise in sea levels. EO S-3-05 established the target that total GHG emissions be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) further details and puts into law the mid-term GHG reduction target established in EO S-3-05. In December 2008, ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (ARB 2008).

3.5.2 Environmental Consequences

3.5.2.1 Approach to Analysis

Air Quality

Regional air pollutant emissions would be generated primarily from construction of the proposed facilities, and, to a negligible degree from the operations and maintenance of the constructed facilities. Air quality impacts from construction activities under the Proposed Action would occur from combustive emissions (i.e., VOC, NO_x, CO) due to the use of fossil fuel-powered equipment, and fugitive dust emissions (i.e., PM₁₀ and PM_{2.5}) from ground-disturbing activities on exposed soil.

Project emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2013.2.2., which is the current comprehensive tool for quantifying air quality impacts from land use projects throughout California. CalEEMod was developed in collaboration with the air districts of California and includes default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) that have been provided by the various California air districts to account for local requirements and conditions (SCAQMD 2013). CalEEMod allows the user to enter project-specific construction information, such as types, number, and horsepower of construction equipment, and number and length of off-site motor vehicle trips (SCAQMD 2013). Vehicle fleet characteristics and data specific to San Diego County or specific to the project were used in place of CalEEMod defaults, where available.

Project construction would occur over approximately 6 months with an approximate start date of October 2019 and end date of March 2020. Construction activities would occur Monday through Friday from 7:00 a.m. to 4:30 p.m. Major construction phases and durations would include demolition of existing fence (30 days), grubbing/vegetation clearing (20 days), rock revetment (30 days), repaving access road (20 days), and fence construction (30 days).

The criteria air pollutants designated as nonattainment or maintenance with the NAAQS in the SDAB (i.e., ozone precursors of VOC and NO_x, and CO) are subject to general conformity requirements. If the estimated total of direct and indirect emissions caused by a proposed action do not exceed conformity *de minimis* thresholds in the SDAB project region (i.e., 100 tons per year of VOC or NO_x, or 100 tons per year of CO), the proposed action would be exempt from a formal conformity determination, and no further analysis would be conducted to determine whether impacts were significant.

For those criteria pollutants designated as attainment of the NAAQS in the SDAB (i.e., SO_x, PM₁₀, and PM_{2.5}), the general conformity requirements do not apply. However, general conformity *de minimis* thresholds are appropriate thresholds to be used for determining NEPA significance, where the total annual emissions of attainment pollutants, as well as the emissions of nonattainment/maintenance pollutants (analyzed for General Conformity) would be compared against the *de minimis* levels. Project alternatives with the potential to generate emissions exceeding the thresholds would have an adverse effect on air quality. If the project alternative's emissions exceed the significance criteria, mitigation measures are available, depending on the nature of the air quality effect.

In addition, implementation of the Proposed Action would have a significant adverse direct effect on air quality sensitive receptors if they would be exposed to substantial localized pollutant concentrations, including CO and diesel PM. The greatest potential for diesel PM emissions related to the Proposed Action would be associated with off-road equipment operations. The generation of diesel PM emissions from construction projects typically occurs in a single area for a short period of time. Construction emissions would occur intermittently throughout the day, as construction equipment is required, rather than as a constant plume of emissions from the project site. All construction emissions would cease following completion of the Proposed Action.

Construction of the Proposed Action would occur for a total of 6 months. Therefore, the total exposure time would be substantially less than the 30-year exposure time for a typical health risk assessment. The buffer distance from the nearest sensitive receptors to freeways would provide sufficient distance (i.e., greater than 500 feet) for pollutant concentrations (i.e., diesel PM emissions) to dilute to nominal levels (ARB 2005). Therefore, considering the substantial buffer distance to the nearest sensitive receptors, intermittent emission source, relatively brief overall exposure period, and the highly dispersive nature of diesel PM emissions, the Proposed Action would not result in a substantial adverse effect related to the exposure of sensitive receptors to substantial pollutant concentrations.

Greenhouse Gases

The potential effects of GHG emissions are by nature global and cumulative, as individual sources of GHG emissions are not large enough to have any appreciable effect on climate change. Therefore, the potential impacts of GHG emissions associated with the Proposed Action are discussed in the context of cumulative effects in Section 4.2.5.

3.5.2.2 Alternative 1

Impacts

Construction of Alternative 1 would result in the temporary generation of emissions of criteria pollutants (i.e., VOC, NO_x, CO, SO₂, PM₁₀, and PM_{2.5}). VOC and NO_x, and CO emissions are primarily associated with mobile equipment exhaust, including construction equipment and vehicles. Fugitive PM dust emissions are primarily associated with ground disturbance (i.e., trenching) and on- and off-road vehicle miles traveled on- and off-site by construction vehicles.

Table 3.5-1 summarizes the predicted annual project emissions for Alternative 1 compared to emission thresholds. Modeling inputs and assumption are provided in the modeling output in Appendix D.

**Table 3.5-1
Alternative 1 – Estimated Annual Emissions**

	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Maximum 2019 Alternative 1 Emissions	0.03	0.30	0.27	0	0.04	0.03
Maximum 2020 Alternative 1 Emissions	0.03	0.30	0.27	0	0.04	0.03
General Conformity <i>de minimis</i> Threshold (tons/year)	100	100	100	100	100	100
Exceed Thresholds?	No	No	No	No	No	No

VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO₂ = sulfur dioxide;
PM₁₀ = particulate matter equal to or less than 10 microns in size (suspended particulate matter); PM_{2.5} = particulate matter equal to or less than 2.5 microns in size (fine particulate matter)
Source: Estimated by AECOM in 2015

As shown in Table 3.5-1, Alternative 1 annual construction and operation emissions of nonattainment and maintenance pollutants of VOC, NO_x, and CO would not exceed the applicable General Conformity *de minimis* thresholds. Therefore, Alternative 1 would conform to the SDAB SIP and would not trigger a formal conformity determination under Section 176(c) of the CAA.

In addition, the attainment pollutants of SO_x, PM₁₀, and PM_{2.5} would not exceed *de minimis* thresholds. Therefore, the Proposed Action would not result in a substantial adverse effect related to a violation of any air quality standard or contribute substantially to an existing or projected air quality violation. No significant impacts to air quality would occur with the implementation of Alternative 1.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential impacts to air quality. To control fugitive dust and exhaust emissions and to minimize the project emissions of dust and particulates during demolition, grading and earthwork operations, and construction, the Navy would:

- Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable APCD regulations.
- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers), if visible soil material is carried onto adjacent paved streets.
- Prepare a detailed demolition plan to identify measures to break up, reuse to the maximum extent practical, and haul away the debris from the demolition of the perimeter fence and any other structures.
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections.
- Maintain and tune engines per manufacturer's specifications to perform at ARB and/or USEPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed.
- If practicable, lease new, clean equipment meeting the most stringent of applicable federal or state standards. In general, commit to the best available emissions control technology. Tier 4 engines should be used for project construction equipment to the maximum extent feasible.

- Lacking availability of nonroad construction equipment that meets Tier 4 engine standards, commit to using ARB and USEPA-verified particulate traps, oxidation catalysts, and other appropriate controls where suitable to reduce emissions of diesel PM and other pollutants at the construction site.
- Consider alternative fuels such as natural gas and electricity (plug-in or battery).

Appropriate abatement measures would also be implemented if asbestos-containing building materials or lead-based paint is determined present in the existing structures to be demolished.

3.5.2.3 Alternative 2

Impacts

Construction activities under Alternative 2 would be greater than those described for Alternative 1, as the entire existing fenceline would be demolished and a replacement fenceline constructed, alignment would be adjusted, revetments would be constructed, and the revetment construction materials haul route within NOLF IB would be repaved. The proposed ground disturbance, operation of construction equipment, and hauling of debris under Alternative 2 would be greater than Alternative 1. Therefore, construction emissions under Alternative 2 would be greater than under Alternative 1.

Construction activities would include construction equipment and vehicle mobilization: access to site, staging areas, and construction area; demolishing existing fence; clearing and grubbing of existing vegetation; rock revetment; drainage/utilities/subgrade; repave access road; trenching for fenceline; fence construction; and restoration landscaping. Typical construction equipment would be utilized for project construction including backhoes, concrete/industrial saws, compactor, cranes, crawler tractors, dozer, grader, rubber-tired and skid steer loaders, off-highway trucks, pavers, paving equipment, rollers, auger, and brush chipper. Earthwork is estimated to require the import of 2,700 cubic yards (CY) of rock for revetment and the export of demolished fence materials of approximately 800 CY of concrete and 3,000 CY of fence material.

Table 3.5-2 summarizes the predicted annual project emissions for Alternative 1 compared to emission thresholds. Modeling inputs and assumption are provided in the modeling output in Appendix D.

**Table 3.5-2
Alternative 2 – Estimated Annual Emissions**

	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Maximum 2019 Alternative 2 Emissions	0.03	0.31	0.28	0	0.04	0.03
Maximum 2020 Alternative 2 Emissions	0.03	0.26	0.25	0	0.03	0.02
General Conformity <i>de minimis</i> Threshold (tons/year)	100	100	100	100	100	100
Exceed Thresholds?	No	No	No	No	No	No

VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO₂ = sulfur dioxide;
 PM₁₀ = particulate matter equal to or less than 10 microns in size (suspended particulate matter); PM_{2.5} = particulate matter equal to or less than 2.5 microns in size (fine particulate matter)
 Source: Estimated by AECOM in 2015

As shown in Table 3.5-2, Alternative 2 annual construction and operation emissions of nonattainment and maintenance pollutants of VOC, NO_x, and CO would not exceed the applicable General Conformity *de minimis* thresholds. Operational emissions would be expected to be the same as under Alternative 1. Alternative 2 would conform to the SDAB SIP and would not trigger a formal conformity determination under Section 176(c) of the CAA. The Navy has prepared a RONA for this project in accordance with CAA Conformity Guidance. The RONA is provided in Appendix E.

In addition, the attainment pollutants of SO_x, PM₁₀, and PM_{2.5} would not exceed *de minimis* thresholds. Therefore, the Proposed Action would not result in a substantial adverse effect related to a violation of any air quality standard or contribute substantially to an existing or projected air quality violation. No significant impacts to air quality would occur with the implementation of Alternative 2.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The measures proposed for Alternative 2 to avoid and minimize potential impacts to air quality would be the same as proposed for Alternative 1.

3.5.2.4 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Baseline air quality conditions would remain unchanged. Therefore, no impacts to air quality would occur with implementation of the No Action Alternative.

3.5.3 Unavoidable Adverse Environmental Effects

No unavoidable adverse effects on air quality would occur as a result of implementation of any of the alternatives.

3.5.4 Summary of Effects

Table 3.5-3 summarizes the effects of the two action alternatives and the No Action Alternative.

**Table 3.5-3
Summary of Air Quality Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
<p>Alternative 1 – Perimeter Fenceline Maintenance</p>	<p>Under Alternative 1, annual emissions of nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 1 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}), for Alternative 1 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be significant under NEPA.</p>	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets. • Incorporate abatement measures if asbestos-containing building materials or lead-based paint is determined present during demolition.
<p>Alternative 2 – Improved Fence Alignment and Structural Improvements</p>	<p>Under Alternative 2, annual emissions of the nonattainment/maintenance pollutants would be less than <i>de minimis</i> levels in the SDAB. Therefore, Alternative 2 would conform to the SIP, and a formal conformity determination would not be required.</p> <p>The estimated annual project emissions of all pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}), for Alternative 2 from 2015 through 2024 would be less than the emission rate thresholds for these pollutants. Therefore, the impact would not be significant under NEPA.</p>	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> To control fugitive dust and exhaust emissions and to minimize dust during demolition, grading and earthwork operations, and construction:</p> <ul style="list-style-type: none"> • Implement best available control measures (BACM) in accordance with OPNAVINST 5090.1D, and applicable SDAPCD regulations. • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard. • Pave, apply water twice daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent paved streets. • Incorporate abatement measures if asbestos-containing building materials or lead-based paint is determined to be present during demolition.
<p>No Action Alternative</p>	<p>No new construction or operational pollutant emissions sources would be generated; therefore, local and regional air quality would not be affected.</p>	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> None</p>

3.6 NOISE

3.6.1 Affected Environment

3.6.1.1 Region of Influence

The ROI for noise includes those areas where construction or operation of facilities associated with the Proposed Action alternatives would potentially affect noise-sensitive receptors. The ROI for noise on this project is NOLF IB and the area surrounding NOLF IB, which is within the City of Imperial Beach (i.e., all surrounding areas where sound from facilities use is or could be audible above background sound levels). The ROI includes noise-sensitive land uses that could be affected by project construction noise including single-family and multifamily residential housing and noise-sensitive wildlife habitat adjacent to NOLF IB.

3.6.1.2 Noise Fundamentals

Noise is unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. The effects of noise on people can include general annoyance; interference with speech communication; sleep disturbance; and, in the extreme, hearing impairment. There is wide diversity in human response to noise that varies based on the type and characteristics of the noise source, the sensitivity of the receptor, the time of day (e.g., more sensitive at night), and the distance between noise source and receptor. Noise-sensitive receptors are generally considered persons who occupy areas that require quiet, including sleeping, convalescing, and studying. Such areas typically include residential dwellings, mobile homes, hotels/motels, hospitals, nursing homes, educational facilities, and libraries. Protected wildlife (i.e., special-status species) and their habitat may also be considered noise-sensitive receptors, especially during their breeding season.

Noise levels are measured as decibels (dB) on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would not double the noise level, but instead the noise level would increase by 3 dB, which is barely perceptible to the average human ear. Additionally, an increase (decrease) of 5 dB is readily perceptible, and an increase (decrease) of 10 dB sounds twice (half) as loud. Thus, human perception of noise has no simple correlation with acoustical energy (i.e., two noise sources do not sound twice as loud as one source). The human ear is not equally sensitive to all frequencies within the sound spectrum; therefore, sound can be characterized as the “A weighted” sound level (dBA), giving greater weight to the frequencies audible to the human ear by filtering out noise frequencies not audible to the human ear. The dBA scale is used for measurements and standards involving the human perception of noise. Typical noise levels for common activities are illustrated in Table 3.6-1.

**Table 3.6-1
Typical Noise Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 1,000 feet	--110--	Rock Band
Gas Lawn Mower at 3 feet	--100--	
Diesel Truck at 50 feet, at 50 mph	--90--	Food Blender at 3 feet Garbage Disposal at 3 feet
Noisy Urban Area, Daytime	--80--	Vacuum Cleaner at 10 feet
Gas Lawn Mower at 100 feet	--70--	
Commercial Area	--60--	Normal Speech at 3 feet
Heavy Traffic at 300 feet	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Daytime	--40--	Theater, Large Conference Room Background
Quiet Urban Nighttime	--30--	Library
Quiet Suburban Nighttime	--20--	Bedroom at Night, Concert Hall Background
Quiet Rural Nighttime	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans 1998

In addition to instantaneous noise levels (L_{max}) in Table 3.6-1, the occurrence or magnitude of noise over time is also important for noise assessment. Average noise levels over a period of time are usually expressed as dBA $L_{eq(x)}$, the equivalent noise level for that period (x). The time of day is also an important factor in noise assessment, as noise levels that may be acceptable during the day may interfere with evening activities (between 7:00 p.m. and 10:00 p.m.) or sleep activities during night hours (between 10:00 p.m. and 7:00 a.m.). Noise levels attenuate (i.e., reduce) with distance between source and receiver at a rate of 6 dBA per doubling of distance over hard site surfaces (e.g., streets and parking lots) and a rate of 7.5 dBA per doubling of distance for soft site surfaces (e.g., open space with vegetation), assuming no intervening topography or structures.

3.6.1.3 Regulatory Setting

Federal Regulations

Noise regulations applicable to the Proposed Action include federal (i.e., Navy) regulations on NOLF IB, and for surrounding areas, the state of California and the City of Imperial Beach noise regulations. The Navy provides the following guidance for reducing environmental noise and establishing noise compatibility criteria for land uses at Navy installations, including the facilities at NOLF IB. Naval Facilities Engineering Command P-970, Planning in the Noise Environment (NAVFAC P-970) is the environmental noise guidance document for NOLF IB. NAVFAC P-970 provides noise compatibility criteria for various land uses. Exterior sound levels up to 65 dBA CNEL are determined compatible with land uses such as residences, transient lodging (motels, hotels), classrooms, and medical facilities; appropriate noise mitigation is required if sound levels are between 65 and 75 dBA CNEL. Exterior sound levels exceeding 75 dBA CNEL are incompatible with these types of land uses (U.S. Navy 1978).

In addition, DoD established the Air Installations Compatible Use Zones (AICUZ) program in response to growing incompatible urban development around military airfields. The AICUZ program provides land use guidelines for local government with the goal of achieving compatible civilian land use patterns and activities in the vicinity of military airfields. The AICUZ program provides noise impact zones delineated by sound contours that radiate out from the airfield runway, including 75, 70, 65, and 60 dBA CNEL contours based on projected annual aircraft operations from the airfield runway, as the primary noise generators are aircraft approaches and departures. Acceptable land uses and minimum building sound level requirements have been established for areas outside of the 70 dBA CNEL contour. Residential areas are considered compatible where the CNEL is less than 65 dBA. The AICUZ for NOLF IB provides baseline noise contours of 75, 70, 65, and 60 dBA CNEL within the NOLF IB boundary to the north and east, adjacent to the residential area of the City (U.S. Navy 2011b).

City of Imperial Beach

General Plan, Noise Element

The Noise Element of the City of Imperial Beach General Plan contains goals and policies intended to protect the community from exposure to excessive noise levels. The goal of the noise element is “to regulate and control unnecessary excessive and annoying sounds and vibrations emanating from uses and activities within the city, and to prohibit such sounds and vibrations as are detrimental to the public health, welfare, and safety of its residents” (City of Imperial Beach 2010).

Noise Ordinance

The City’s noise ordinance is contained in Section 9 of the City of Imperial Beach Municipal Code (City of Imperial Beach 2015). The noise ordinance does not contain quantifiable noise level limits at property lines, but regulates noise based on disturbance of “the peace, quiet and comfort of the community by creating unreasonably loud or disturbing unnecessary noises.” Section 9.32.020(H) Construction prohibits “the use of any tools, power machinery or equipment so as to cause noises disturbing to the comfort and repose of any person residing or working in the vicinity, or in excess of seventy-five decibels, between the hours of ten p.m. and seven a.m., except when the same is necessary for emergency repairs required for the health and safety of any member of the community” (City of Imperial Beach 2015).

3.6.1.4 Existing Noise Sources

The primary noise source at NOLF IB is helicopter operations. NOLF IB is an active airfield for mission operations of NBC, principally, helicopter training exercises. The airfield and associated facilities occur within NOLF IB surrounded by a perimeter fence. Helicopters are based at NOLF IB and conduct landing practice and lift training operations at NOLF IB. Helicopters stationed at Naval Air Station North Island routinely flying to NOLF IB to conduct training and practice (U.S. Navy 2015). The AICUZ for NOLF IB provides the baseline noise contours of 60 dBA CNEL at the NOLF IB boundary to the north and east,

adjacent to the residential area of the City (U.S. Navy 2011b). The Proposed Action would not change any current flight operations.

NOLF IB is surrounded by densely developed, single-family housing in the City of Imperial Beach to the north and east, and open space to the west and south. The nearest major roadways of Interstate 5 (I-5) and State Route 75 (SR-75) are located approximately 1 mile to the northeast and the north, respectively. The nearest major arterial is Imperial Beach Boulevard/Coronado Avenue, which is located approximately 0.5 mile from NOLF IB to the north. Therefore, traffic noise is limited to local collector streets in the adjacent residential area.

3.6.1.5 Noise Sensitive Receptors

The nearest off-base human noise-sensitive receptors are the single-family residences along Iris Avenue in the City of Imperial Beach, adjacent to the NOLF IB northern and eastern boundary, and multifamily residences adjacent to the northeastern boundary. The San Diego Job Corps Technical School is located on Iris Avenue near the northeastern NOLF IB boundary.

Protected wildlife (special-status species) and their habitat may also be considered noise-sensitive receptors, especially during their breeding season. The occurrence of special-status species adjacent to the NOLF IB boundary are addressed in Section 3.3, Biological Resources, of this EA.

3.6.2 Environmental Consequences

3.6.2.1 Approach to Analysis

This section focuses on activities of the Proposed Action alternatives that could generate noise and impact noise-sensitive receptors. The analysis focuses primarily on construction noise, as post-construction (operation of the fence) noise effects are limited to fenceline operations and maintenance activities. Factors considered in evaluating the effects of an alternative on noise include the extent to which the alternatives would violate federal, Navy, state, regional, or local noise standards or requirements.

Public concerns about noise in general may include hearing loss, nonauditory health effects, conversation interruption, sleep interference, distraction, and annoyance. Existing training activities at NOLF IB do not generate noise at intensities that could contribute to hearing loss in off-site public areas, and since the Proposed Action would not change existing training activities, this issue is not further addressed. Thus, the potential noise effects would be conversation interruption, sleep interference, distraction, and annoyance.

Construction

Construction noise would be generated by the use of construction equipment and vehicles, and the transport of material and workers to and from the construction site. Construction noise levels are a function of the number and type of equipment used and the timing and duration of their noise-generating activities. Construction activities would include construction equipment and vehicle mobilization: access to site, staging areas, and construction area; demolishing existing fence; clearing and grubbing of existing vegetation; rock revetment (Alternative 2 only); drainage/utilities/subgrade; repave access road (Alternative 2 only); trenching for fenceline; fence construction; and restoration landscaping. Typical construction equipment would be utilized for project construction including auger, backhoe, concrete/industrial saw, compactor, cranes, crawler tractors, dozer, dump trucks, grader, rubber-tired and skid steer loaders, pavers, paving equipment, rollers, and brush chipper. Earthwork is estimated to require the import of 2,700 CY of rock for revetment and the export of demolished fence materials of approximately 800 CY of concrete and 3,000 CY of fence material. Table 3.6-2 provides a list of maximum noise levels generated by various types of equipment that would be used for the construction of proposed facilities.

**Table 3.6-2
Construction Equipment Noise Levels**

Equipment	Maximum Noise Level (dBA L_{max}) 50 Feet from Source
Auger	85
Backhoe	80
Concrete Saw	90
Compactor (ground)	80
Crane	85
Crawler Tractor	84
Dozer	85
Dump Truck	84
Front-End Loader	80
Grader	85
Paver	85
Roller	85

dBA = ampere-weighted decibels
Source: FHWA 2006

As shown in Table 3.6-2, maximum noise levels from construction equipment range from approximately 80 to 90 dBA L_{max} at 50 feet from the equipment. These noise levels vary for individual pieces of equipment, based on different sizes and engines, and as a function of the activity level, or duty cycle. In addition to these maximum instantaneous noise levels, the magnitude of overall construction noise can be defined by the type of construction activity, the various pieces of equipment operating, and the duration of their activity. Typically, construction noise is averaged over time and expressed as dBA L_{eq}. Based on these maximum noise levels, average construction noise levels would be approximately 75 dBA L_{eq} at 50 feet.

Construction traffic associated with truck deliveries of construction materials, vehicles, and equipment; truck hauling of demolition materials; and construction worker daily trips would generate noise on-site and along access roadways during construction. Delivery and haul trucks traveling to and from the project site(s) would use designated truck routes, and construction workers would travel to and from the project site using regional freeways and major arterials. The anticipated truck haul route from NOLF IB to I-5 is 13th Avenue to Palm Avenue (SR-75) to I-5. The maximum anticipated daily truck hauling of materials would be approximately 10 round trips per day.

3.6.2.2 Alternative 1

Impacts

Noise associated with Alternative 1 would be generated by the operation of the construction equipment, primarily during earthmoving and truck hauling. Construction activities would include construction equipment and vehicle mobilization; access to site, staging areas, and construction area; demolishing and repairing portions of the existing fence; clearing and grubbing of fenceline vegetation; drainage/utilities/subgrade; fenceline trenching; fence construction; truck transport of demolished fence material and concrete; and restoration landscaping. Construction noise would typically occur during the weekday daytime hours of 7:00 a.m. to 4:30 p.m. Construction noise levels would average approximately 75 dBA L_{eq} at 50 feet.

The nearest residences are approximately 50 feet from the NOLF IB perimeter fence. Therefore, construction noise levels would average approximately 75 dBA L_{eq} at the nearest residences, with potential maximum noise levels ranging from 80 to 90 dBA L_{max} at 50 feet from the equipment. The City noise ordinance does not contain a quantifiable construction noise level limit at residential property lines, but prohibits “the use of any tools, power machinery or equipment so as to cause noises disturbing to the comfort and repose of any person residing or working in the vicinity.” Therefore, residences in proximity to the fenceline would be affected by construction noise, when construction activities are in proximity to each residence. The location of construction activities along the fenceline would move linearly at a rate of approximately 400 linear feet per day, thereby decreasing or increasing the distance from the construction noise source to a residence during a workday, but ultimately limiting the duration of noise exposure at any given location. Construction noise levels would attenuate with distance at a rate of 6 dBA per doubling of distance; therefore, average construction noise levels of approximately 75 dBA L_{eq} at 50 feet would attenuate to 69 dBA L_{eq} at 100 feet, 63 dBA L_{eq} at 200 feet, and 57 dBA L_{eq} at 400 feet. Therefore, the Alternative 1 would not result in a substantial adverse effect related to a violation of any noise standard. Construction traffic noise associated with truck deliveries of construction materials, vehicles, and equipment; truck hauling of demolition materials; and construction worker daily trips would be minimal compared to the existing vehicle traffic noise of the access route from NOLF IB to I-5 of 13th Avenue to Palm Avenue (SR-75) to I-5. No significant noise impacts would occur with the implementation of Alternative 1.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential noise impacts:

Construction activities would generally be restricted to occur between 7:00 a.m. and 10:00 p.m. Mondays through Saturdays.

The following typical construction noise reduction measures are recommended to reduce and minimize noise levels during construction, including, but not limited to:

- Noise Complaint Reporting – A project telephone hot-line would be established by the construction contractor for use by the public to report any significant adverse noise conditions associated with the construction of the Proposed Action. This hot-line telephone number would be posted at the project site during construction in a manner visible to passersby.
- Noise Complaint Investigation – Throughout the construction phase, noise complaints would be reviewed by the Base and resolution would be coordinated with the contractor via NAVFAC's Facilities Engineering and Acquisition Division. The contractor would document, investigate, evaluate, and attempt to resolve all legitimate Proposed Action-related noise complaints and take all reasonable measures to reduce the noise at its source.
- Construction Practices – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing construction noise levels at nearby noise-sensitive receivers:
 - Minimize noise-intrusive impacts during most noise-sensitive hours (e.g., between 10:00 p.m. and 7:00 a.m.).
 - Plan noisier operations during times of highest ambient noise levels.
 - Keep noise levels relatively uniform; avoid excessive and impulse noises.
- To the extent practical and unless safety provisions require otherwise, all audible back-up alarms should be adjusted downward in sound level, reflecting locations that have expected lower background level, while still maintaining adequate signal-to-noise ratio for alarm effectiveness. Signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, would also be options for reducing reliance on high-amplitude sonic alarms.

- Stationary noise sources, such as generators and air compressors, would be placed away from affected noise-sensitive receivers to the farthest extent practical.
- Equipment Noise Reduction – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise.
 - Minimize the use of impact devices, such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal.
 - Pneumatic impact tools and equipment used at the construction site would have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations.
 - Provide impact noise producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise.
 - Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces).
 - Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines.

3.6.2.3 Alternative 2

Construction activities under Alternative 2 would be greater than those described for Alternative 1. The proposed ground disturbance, operation of construction equipment, and hauling of debris under Alternative 2 would be greater than Alternative 1. Earthwork is estimated to require the import of 2,700 CY of rock for the rock revetment, roadway repavement along the revetment rock haul route within NOLF IB, and the export of demolished fence materials of approximately 800 CY of concrete and 3,000 CY of fence material. Additionally, Alternative 2 includes a section of temporary fence construction and permanent fence relocation not included in Alternative 1. Therefore, construction noise under Alternative 2 would be greater than under Alternative 1. However, construction noise under Alternative 2 would be similar to under Alternative 1 along the fenceline in proximity to a residence. Rock revetment slope protection activities would occur along the southeastern portion of the fenceline, where there are no residences adjacent to or in proximity of the activities.

Therefore, Alternative 2 would not result in a substantial adverse effect related to a violation of any noise standard. Construction traffic noise would be minimal compared to the existing vehicle traffic noise of the access route from NOLF IB to I-5 of 13th Street to Palm Avenue (SR-75) to I-5. No significant noise impacts would occur with the implementation of Alternative 2.

3.6.2.4 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Baseline noise conditions would remain unchanged. Therefore, no noise impacts would occur with implementation of the No Action Alternative.

3.6.3 Unavoidable Adverse Environmental Effects

No unavoidable adverse noise effects would occur as a result of implementation of any of the alternatives.

3.6.4 Summary of Effects

Table 3.6-3 summarizes the effects of the two action alternatives and the No Action Alternative.

**Table 3.6-3
Summary of Noise Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance	Under Alternative 1, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> <u>Noise Complaint Reporting</u> – A telephone hot-line would be established by the construction contractor for use by the public to report any significant adverse noise conditions associated with the construction of the Proposed Action. This hot-line telephone number would be posted at the project site during construction in a manner visible to passersby.</p> <p><u>Noise Complaint Investigation</u> – Throughout the construction of the Proposed Action, complaints would be submitted to the Base and resolution would be coordinated with the contractor via Facilities Engineering and Acquisition Division. The contractor would take all reasonable measures to reduce the noise at its source.</p> <p><u>Construction Practices</u> – The following are typical field techniques for reducing noise from construction activities, with the purpose of reducing construction noise levels at nearby noise-sensitive receivers:</p> <ul style="list-style-type: none"> • Minimize noise-intrusive impacts during most noise-sensitive hours (e.g., 10:00 p.m. to 7:00 a.m.). • Plan noisier operations during times of highest ambient noise levels. • Keep noise levels relatively uniform; avoid excessive and impulse noises. • To the extent practical and unless safety provisions require otherwise, all audible back-up alarms should be adjusted downward in sound level, reflecting locations that have expected lower background level, while still maintaining adequate signal-to-noise ratio for alarm

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
		<p>effectiveness. Signal persons and strobe lights, or alternative safety equipment and/or processes as allowed, would also be options for reducing reliance on high-amplitude sonic alarms.</p> <ul style="list-style-type: none"> • Stationary noise sources, such as generators and air compressors, would be placed away from affected noise-sensitive receivers to the farthest extent practical. <p><u>Equipment Noise Reduction</u> – The following are typical practices for construction equipment selection (or preferences) and expected function that can help reduce noise:</p> <ul style="list-style-type: none"> • Minimize the use of impact devices, such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal. • Pneumatic impact tools and equipment used at the construction site would have intake and exhaust mufflers recommended by the manufacturers thereof, to meet relevant noise limitations. • Provide impact noise-producing equipment (i.e., jackhammers and pavement breaker[s]) with noise attenuating shields, shrouds or portable barriers or enclosures, to reduce operating noise. • Line or cover hoppers, storage bins, and chutes with sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces). • Provide upgraded mufflers, acoustical lining, or acoustical paneling for other noisy equipment, including internal combustion engines.
Alternative 2 – Improved Fence Alignment and Structural Improvements	Under Alternative 2, project noise levels generated primarily by construction activities would not result in a substantial adverse effect related to a violation of any noise standard. Therefore, no significant impact would occur.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> Use same measures as for Alternative 1.</p>
No Action Alternative	No new construction or operational noise would be generated; therefore, noise would not be affected.	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u> None</p>

3.7 PUBLIC HEALTH AND SAFETY

Public health and safety issues are defined as those elements of the Proposed Action that would directly affect the health and safety of individuals in the communities adjacent to NOLF IB alternative sites. The Navy's policy is to use every possible precaution in planning and executing all activities to prevent injury to people and damage to property. Effects that occur within Navy-controlled areas do not pose a substantial public safety or health concern because the public normally does not have access to these areas. This public health and safety assessment addresses effects that are not entirely contained within Navy-controlled areas, and activities that take place in areas of public use. Proposed Action effects that do not directly affect the health or safety of members of the public are not considered in this assessment; also, concerns that affect single individuals and isolated incidents may not rise to the level of a public health or public safety issue. Noise effects are not addressed in this section (see Section 3.6, Noise); thus, the resource to be evaluated for Proposed Action effects is the collective health and safety of groups of individuals in the communities adjacent to the proposed NOLF IB alternative sites.

3.7.1 Affected Environment

3.7.1.1 Region of Influence

The ROI for public health and safety concerns includes portions of the City of Imperial Beach adjoining NOLF IB. Areas of heightened sensitivity to public health and safety concerns within the ROI include residential districts where substantial populations of people are present at all times of the day and night, and areas where large groups of people may gather, such as commercial areas, parks, marinas, public beaches, and other recreational open spaces.

3.7.1.2 Hazards Overview

Electromagnetic Radiation

Communications and electronic devices such as radar, electronic jammers, and other radio transmitters produce electromagnetic radiation (EMR). An EMR hazard exists when transmitting equipment generates electromagnetic fields that induce currents strong enough or voltages high enough to trigger electro-explosive devices in ordnance, directly harm people or wildlife, or create sparks that can ignite flammable substances. In addition to relatively high-power devices that may produce EMR, Navy personnel also routinely use low-power communications equipment, such as two-way radios and cell phones.

Hazards of EMR to personnel, ordnance, and fuel have been determined for EMR sources based on their operating frequency and power output. Hazards are reduced or eliminated by establishing minimum distances between EMR emitters and people, ordnance, and fuels. No known hazards to personnel, ordnance, or fuel exist at NOLF IB, and there are no hazards to the public in off-site areas; therefore, EMR will not be addressed further in this EA.

Environmental Restoration Program

The Defense Environmental Restoration Program (ERP), created under the Superfund Amendments and Reauthorization Act, has two site cleanup programs: IRP for sites with past releases of hazardous substances and MRP for sites with munitions and explosives of concern. The Environmental Restoration, Navy (ERN) program is required to comply with the substantive provisions of applicable or relevant and appropriate requirements (ARARs) identified before performing remedial or removal actions. Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Section 121(d) requires compliance with state and federal ARARs for wastes left on-site at the conclusion of a remedial response. Overall, protection of human health and the environment and compliance with ARARs (unless a specific ARAR is waived) are threshold requirements that a remedial alternative must meet to be selected. In cases where removal actions will be performed, ARARs shall be attained to the extent practicable. ARARs are identified on a case-by-case site-specific basis, considering but not limited to factors such as the hazardous substance present, the site's physical features and the actions being considered as remedies. Coordination with agencies regarding listed species and critical habitats during the normal CERCLA process through document review and agency input is sufficient to satisfy the substantive requirements of the Endangered Species Act as well as the CERCLA/National Oil and Hazardous Substances Pollution Contingency Plan requirements to coordinate with natural resource agencies.

The ERN program consists of sites funded under the IPR and the MRP. There are several different types of sites funded under the IRP, including IR sites, underground storage tank (UST) sites, solid waste management units, and operable units. Within the footprint of the Proposed Action, there are currently three IRP sites, including two active IR sites (Site 6 and Site 7) and one UST site (UST 2), as well as one MRP site (Site 12). As noted below, IR Site 7 is broken into three distinct subareas. Figure 2-1 shows the location of these sites.

IR Site 6 is a former firefighting training area used from the 1950s to the late 1980s and is located in an area south of a paved service road (Boundary Road) in the southwest portion of NOLF IB (Figure 2-1). It is located near the edge of a relatively flat mesa, which slopes toward the Tijuana River valley to the south. The site elevation is approximately 20 feet above mean sea level. The site is relatively flat and is overlain by a sparse cover of grass. Access is by gravel roads off Boundary Road. Site 6 has two subareas, a western subarea and an eastern subarea (Figure 2-1). Before 1970, firefighting training occurred in a pit located in the western subarea. The pit was approximately 25 feet in diameter and 5 to 6 feet deep. Reportedly, volumes of up to 1,200 gallons at a time of combustible fluids such as diesel, Jet Propellant 5 (JP-5), gasoline, waste motor oil, hydraulic fluids, petroleum distillate (PD)-680 solvent (also referred to as Stoddard Solvent), kerosene, and transformer dielectric fluids were used in training exercises. The western subarea pit was covered with fill material in 1970. The second training area is located on the eastern subarea portion of the site where a shallow pit was excavated. Diesel and JP-5 were the primary combustible materials used during exercises that continued through the late 1980s. This eastern subarea pit was filled and left vacant (PWC 1996).

IR Site 7, the former rubble disposal area, is located at the southwestern edge of the station. The site is composed of three noncontiguous subareas. The first subarea, IR Site 7A, is directly south of IR Site 6 on a bluff above the Tijuana River (this bluff area drops approximately 10 to 15 feet to the Tijuana River) and is about 6 acres. The second subarea, IR Site 7B, is located northeast about 400 yards and is about 0.8 acre (Figure 2-1). A chain-link fence and locked gate (“Gate 5”) restricts access to the southern portion of IR Site 7 (PWC 1996). IR Site 7C is located farther east, near the eastern edge of Runway 27 and is about 3.2 acres in size (Figure 2-1). The former Skeet Range comprises a 29-acre area south of and along the airfield fence, overlapping IR Site 7A (Figure 2-1). IR Site 7 was previously used for rubble disposal to reduce erosion from the bluffs. Items placed at the site included construction debris, sandblast grit, creosote pilings, oiled soils, and inert rubble (NEESA 1986). Oiled soils removed from NOLF IB IR Site 8 may have also been placed at IR Site 7 (NAVFAC Southwest 1999).

The Former Skeet Range was used from 1943 until 1966 and consists of a firing line or arc and a range fan or surface danger zone. The surface danger zone is a half circle that extends at a 90-degree angle outward 900 feet into the Tijuana River drainage. Personnel using the Skeet Range fired toward the southeast at moving targets launched from either end of the firing line. The Tijuana River flowed through the Skeet Range south of the firing line area where clay pigeon debris exists, and appears to have washed away and transported clay pigeon debris and lead shot into the hydrologic floodplain (ChaduxTt 2011).

UST 2, the former Navy Exchange (NEX) gas station site, is located on the northeastern portion of NOLF near former Building 168 and the main entrance of NOLF IB on Tower Road (Figure 2-1). Six USTs were previously associated with the site. USTs 168-1 (6,000-gallon), 168-2 (6,000-gallon), 168-3 (10,000-gallon), and 168-4 (10,000-gallon) were used to store gasoline and were located at the central portion of the site. Those four USTs were removed in January 1999. USTs 168-5a and 168-5b (both 500-gallon) were located approximately 80 feet north of former USTs 168-1 through 168-4 and have been identified as previously containing oily waste and possibly gasoline. The two oily waste tanks were removed in February 1994. All six of these tanks (collectively referred to as the “Building 168 USTs”) were formerly managed under the NBC UST compliance program. Total petroleum hydrocarbon (TPH) gasoline; benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tertiary-butyl ether (MTBE) were detected during multiple site assessment activities. Leaking USTs resulted in releases to groundwater as well.

MRP Site 12, the former small arms firing range, comprises 2.87 acres in the southwest corner of NOLF IB (Figure 2-1). MRP Site 12 contains two connected berms. The northern west-to-east-trending impact berm is approximately 15 feet high and 500 feet long. The western south-to-north-trending impact berm is approximately 35 feet high and 300 feet long, with the southern corner of the berm having been eroded away by historical rain events and past flooding, or collapsed out into the floor of the firing range.

Low Level Radiological Objects

Radiological items have recently been identified in the existing and Proposed Action fenceline corridor(s) between IR Site 6 and MRP Site 12, with their distribution overlapping with IR Site 7A. To date, over

100 low level radiological objects, including radium dials, depleted uranium helicopter counterweights, paint flecks, metal flakes, mineralized material, and range of other assorted small objects, have been discovered and inventoried during background investigation of the site and an abbreviated gamma walkover survey outside of the existing perimeter fence. Their discovery has resulted in a requirement for NBC to develop notification procedures and access controls for personnel working south of the NOLF IB airfield. These procedures and controls are currently being drafted by NBC and are not yet addressed under the IR Program.

Emergency Management

NOLF IB is within the area of responsibility of NBC. NBC has an Installation Emergency Management Plan to “ensure that the installation is prepared for, able to mitigate the effects of, respond to, and recover from any emergency” (U.S. Navy 2013). The plan provides the NBC Commanding Officer with the authority and responsibility to protect personnel, equipment, and facilities on NBC from both natural and manmade emergencies. It provides the framework for Navy interaction with federal, state, local, other service, and private organizations. The plan encompasses five phases of emergency management: prevention, mitigation, preparedness, response, and recovery. The plan:

- provides operational and response organization structures;
- identifies response resources and assets;
- establishes assessment requirements and criteria;
- establishes training standards for assigned personnel;
- provides policy for equipment procurement, issue, and maintenance;
- establishes exercise and evaluation requirements; and
- identifies operational procedures.

The plan includes an emergency alert system that provides mass warning and notification in the case of an emergency. It also includes an evacuation and sheltering.

Terrorist Activity

The concentration of military installations and activity in the San Diego area could cause concern that the area and NOLF IB may be a potential target for a future terrorist attack. An Antiterrorism Plan is included as part of the NBC Installation Emergency Management Plan discussed above (U.S. Navy 2013). The Antiterrorism Plan has site-specific measures for counter surveillance, counterintelligence, situational awareness, physical security, and law enforcement.

Public Access and Proximity

NOLF IB is bounded to the north, east, and northeast by the highly developed and mostly residential City of Imperial Beach. I-5 is a 10-lane major freeway that passes 1.4 miles northwest of NOLF IB in a

general north-south direction. A portion of the TRNERR/TSNWR is located on NOLF IB and provides recreational and interpretive opportunities. These portions of the TRNERR/TSNWR are administered under a Memorandum of Understanding (MOU) between Naval Air Station North Island (NASNI) and USFWS relating to the protection of natural resources. The U.S. Border Patrol, Department of Labor, and Defense Reutilization and Marketing Office maintain leases on the installation, and there are agricultural and grazing leases as well. Access to NOLF IB is primarily from 13th Street, by way of Palm Avenue, via I-5. The primary entry control point for NOLF IB is located on Iris Avenue (U.S. Navy 2013).

3.7.2 Environmental Consequences

Public health and safety is an interdisciplinary issue that is intertwined with other environmental topics. Other sections will cover some of the same topics. Seismic hazards are addressed in Section 3.1, Topography, Geology, and Soils. Hazardous air pollutants are addressed in Section 3.5, Air Quality and Climate Change, in accordance with the CAA's National Emissions Standards for Hazardous Air Pollutants regulations. Human annoyance and the potential for hearing loss from noise are addressed in Section 3.6, Noise. The remaining public health and safety issues are addressed in this section.

3.7.2.1 Approach to Analysis

This resource section focuses on groups of activities that could pose a credible risk to public health and safety. This analysis will focus on construction and use activities of the Proposed Action alternatives. Also addressed are activities that raise public safety concerns where members of the public are close to a potentially hazardous activity or could be exposed to hazardous activities such as terrorism. As discussed in Section 3.7.1.2, Hazards Overview, the Proposed Action would not involve any changes to EMR, ordnance training, aircraft activities, underwater detonations, or public access; therefore, these activities will not be discussed further.

3.7.2.2 Alternative 1

Impacts

This analysis will focus on construction, and operations and maintenance activities. Terrorist activity, although unlikely, is a possibility and will also be addressed.

Construction

Construction activities associated with perimeter fenceline repair and maintenance of Alternative 1 would be accomplished without substantial changes to the existing landform. All construction activities will occur within NOLF IB, which has Navy controlled access. All Occupational Safety and Health Administration (OSHA) standards from C.F.R. Title 29 would be implemented during construction. The proposed construction activities would not be any different from typical construction activities occurring throughout San Diego, and all standard construction safety procedures would be implemented.

Construction safety procedures per applicable subparts of the OSHA standards from C.F.R. Title 29 could include:

- Eye protection, protective clothing, respiratory protection, head protection, foot protection, electrical protective equipment and hand protection (see Personal Protective Equipment; subparts 1910.132 to 1910.139)
- Number of and ease of access to exits within each area and emergency plans (see Means of Egress; subparts 1910.35 through 1910.38)
- First aid availability and training (see Medical and First Aid; subparts 1910.151 through 1910.152)
- Guarding and maintenance of hand-powered equipment (see Hand and Portable Powered Tools and Other Hand-Held Equipment; subparts 1910.241 through 1910.244)
- Design safety standards, safe work practices, maintenance requirements (see Electrical; subparts 1910.301 through 1910.399)

With the compliance of relevant health and safety standards, construction activities would not result in a significant public health and safety impact under Alternative 1.

ENVIRONMENTAL RESTORATION PROGRAM

IR Sites 6 and 7 are currently under a time-critical removal program through the ERP. The removal program is expected to be completed by 2016. If the final action is not completed by the time construction begins, the fence construction activities would be coordinated with the ERP Remedial Project Manager to determine if any health and safety measures are required before the commencement of construction. Therefore, IR Site 6 and IR Site 7 are considered to pose minimal risk to human health or the environment under Alternative 1.

The Extended Site Assessment for the UST 2 site was completed in March 2015 in accordance with a work plan approved by the San Diego RWQCB, which is the lead regulatory agency providing oversight for the investigation. Samples were analyzed for TPHs (TPH-gasoline, TPH-diesel, and TPH-motor oil), BTEX compounds, MTBE, polyaromatic hydrocarbons, and organic lead in order to assess the potential for vapor intrusion impacts to residents. Based on soil vapor data collected at 5 feet below ground surface, there is no unacceptable risk to residences north of the former NEX gas station site in the City of Imperial Beach; however, due to contamination detected at 10 feet below ground surface in some areas of the site, there is potentially unacceptable risk to workers who may conduct subsurface work such as repair of utility lines at these depths, which is much deeper than any ground disturbance associated with fence repair or replacement under Alternative 1. Therefore, the UST 2 site is considered to pose minimal risk to human health or the environment under Alternative 1.

The remedial evaluation process is still ongoing at MRP Site 12. A Preliminary Assessment/Site Inspection report was recently issued for the site. The Navy is preparing a time-critical removal action work plan. The removal program is expected to start during fall of 2015. If the final action is not completed by the time construction is due to start, the fence construction activities would be coordinated with the ERP Remedial Project Manager to determine if any health and safety measures were required before the commencement of construction. Therefore, MRP Site 12 is considered to pose minimal risk to human health or the environment under Alternative 1.

In terms of the low level radioactive objects within the existing and proposed fenceline corridor between IR Site 6 and MRP Site 12, and within IR Site 7A, notification procedures and access controls for personnel working in the area are currently being drafted by NBC and additional surveys are planned to further document the site. If the site is not remediated by the time construction of the Proposed Action is due to start, fence construction activities would be coordinated with the ERP Remedial Project Manager to determine if any health and safety measures were required before the commencement of construction. Therefore, low level radioactive objects are considered to pose minimal risk to human health or the environment under Alternative 1.

EMERGENCY MANAGEMENT

The construction of Alternative 1 would be done in compliance with the NBC Installation Emergency Management Plan and all of its relevant supporting plans.

TERRORIST ACTIVITY

NOLF IB could be perceived as a future target of terrorism. It would not, however, be considered any more of a focus than NBC Coastal Campus, NAB Coronado, or NASNI, or any other military installation. A terrorist attack would presumably be directed at NOLF IB and not the local community; however, collateral damage and injuries as a result could occur in the areas surrounding NOLF IB. The installation has, and would continue to have, secure, controlled access 24 hours per day, 7 days per week. NOLF IB is fully fenced and implementation of Alternative 1 would ensure continued security of the installation. Alternative 1 would comply with the Antiterrorism Plan (as part of the NBC Installation Emergency Management Plan) and AT/FP guidelines would be incorporated into the fence design to further enhance security and safety at NOLF IB. Therefore, terrorist activity, although unlikely, would not be considered a significant impact to public health and safety of surrounding residents and the public in general because of the Proposed Action.

Operations and Maintenance

Following repair of the existing fence, operations and ongoing maintenance of the fence associated with Alternative 1 pose little risk to public health or safety outside of the installation's boundary. Impacts would not be expected to be greater than existing conditions as the new fence would remain in the existing location. The Navy periodically conducts inspections of the fence to address security and safety,

and implements all necessary counterterrorism measures. These measures work cohesively to discourage any act of terrorism. Therefore, no significant impacts to public health and safety would occur during operations and maintenance of Alternative 1.

EMERGENCY MANAGEMENT

Alternative 1 would not establish additional assets and facilities that could be susceptible to a natural or manmade emergency. The operations and maintenance of Alternative 1 would be done in compliance with the NBC Installation Emergency Management Plan and all of its relevant supporting plans.

TERRORIST ACTIVITY

Operations and maintenance of Alternative 1 would ensure compliance with the DoD UFC as prescribed by MIL-STD 3007 and compliance with AT/FP requirements. Therefore, terrorist activity, although unlikely, would not be considered a significant impact to public health and safety of surrounding residents and the public in general because of Alternative 1.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

The following measures are proposed to avoid and minimize potential public health and safety impacts:

- Compliance with the NBC Installation Emergency Management Plan and its relevant supporting plans.
- Where construction would occur in the footprint of an ERP site or within the area of recent discovery of low level radiological objects, the construction would be coordinated with the ERP Remedial Project Manager to determine if any worker health and safety measures need to be taken.
- Manage and dispose of disturbed soil or debris in the event that residual contamination is encountered in accordance with Navy guidance (OPNAVINST 5090.1D and 5100.23), and applicable state and federal regulations.
- A plan or guidance for the contractor should be in place in the event that unforeseen materials are discovered during construction. This would include communication and follow-on action protocol.

- Compliance with all standard construction safety procedures and applicable subparts of the OSHA standards would occur.

3.7.2.3 Alternative 2

Impacts

Construction Activities

The same impacts during construction as those listed above for Alternative 1 would be expected. However, instead of repairing or replacing sections of the existing perimeter fence, the entire fence would be replaced, with realignment occurring in some areas. Therefore, impacts of Alternative 2 on public health and safety would be greater than Alternative 1 as ground disturbance would be greater. As described above under Alternative 1, with the employment of appropriate engineering design, construction standards and requirements, and avoidance of IR sites to the extent feasible, Alternative 2 would not have a significant impact on public health and safety.

Operations and Maintenance

Maintaining the clear recovery zone during ongoing maintenance activities would involve the same impacts as those listed above for Alternative 1. Compliance with applicable regulatory requirements would minimize the effects of the action on public health and safety.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

Impact avoidance and minimization measures for Alternative 2 would be the same as those described for Alternative 1.

3.7.2.4 No Action Alternative

Impacts

Under the No Action Alternative, the Proposed Action would not occur. Baseline public health and safety conditions would remain unchanged. Therefore, no impacts to public health and safety conditions would occur with implementation of the No Action Alternative. The perimeter fence, however, would remain in

damaged condition and would not provide protection for personnel and security for operational areas, and thus would not comply with the DoD UFC as prescribed by MIL-STD 3007 and the AT/FP requirements.

Mitigation Measures/Impact Avoidance and Minimization Measures

Mitigation Measures

No mitigation measures are proposed.

Impact Avoidance and Minimization Measures

No impact avoidance and minimization measures are proposed.

3.7.3 Unavoidable Adverse Environmental Effects

No unavoidable adverse environmental effects to public health and safety would occur as a result of implementation of any the alternatives.

3.7.4 Summary of Effects

Table 3.7-1 summarizes the effects of the No Action Alternative, Alternative 1, Alternative 2, and Alternative 3.

**Table 3.7-1
Summary of Public Health and Safety Effects**

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
Alternative 1 – Perimeter Fenceline Maintenance	<p>Construction activities would be typical and would occur within the footprint of NOLF IB, and would include all standard construction safety procedures. Construction activities would not result in a significant public health and safety impact.</p> <p>Operation and maintenance activities would pose no substantial risk to public health and safety.</p> <p>Terrorist activity, although unlikely, would not be considered a significant impact on public health and safety.</p>	<p><u>Mitigation Measures:</u> None</p> <p><u>Impact Avoidance and Minimization Measures:</u></p> <ul style="list-style-type: none"> • Compliance with the NBC Installation Emergency Management Plan and its relevant supporting plans. • Where construction would occur in the footprint of an ERP site or within the area of recent discovery of low level radiological objects, the construction would be coordinated with the ERP Remedial Project Manager to determine if any worker health and safety measures need to be taken. • Manage and dispose of disturbed soil or debris in the event that residual contamination is encountered in accordance with Navy guidance (OPNAVINST 5090.1D and 5100.23), and applicable state and federal regulations. • A plan or guidance for the contractor should be in place in the event that unforeseen materials are discovered during construction. This would

Alternative	Effects	Mitigation Measures/Impact Avoidance and Minimization Measures
		include communication and follow-on action protocol. <ul style="list-style-type: none"> • Compliance with all standard construction safety procedures and applicable subparts of the Occupational Safety and Health Administration standards would occur.
Alternative 2 – Improved Fence Alignment and Structural Improvements	Same as Alternative 1.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> Same as for Alternative 1.
No Action Alternative	No significant public health and safety impacts.	<u>Mitigation Measures:</u> None <u>Impact Avoidance and Minimization Measures:</u> None

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CHAPTER 4.0

CUMULATIVE IMPACTS

4.1 PRINCIPLES OF CUMULATIVE IMPACTS ANALYSIS

The approach taken to analyze cumulative impacts (or cumulative effects) follows the objectives of NEPA of 1969, CEQ regulations, and CEQ guidance. CEQ regulations (40 C.F.R. Parts 1500–1508) provide the implementing procedures for NEPA. The regulations define “cumulative effects” as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 C.F.R. § 1508.7).

CEQ provides guidance on cumulative impacts analysis in *Considering Cumulative Effects under the National Environmental Policy Act*. This guidance further identifies cumulative effects as those environmental effects resulting “from spatial and temporal crowding of environmental perturbations. The effects of human activities will accumulate when a second perturbation occurs at a site before the ecosystem can fully rebound from the effects of the first perturbation.” Noting that environmental impacts result from a diversity of sources and processes, this CEQ guidance observes that “no universally accepted framework for cumulative effects analysis exists,” while indicating that certain general principles have gained acceptance. One such principle provides that “cumulative effects analysis should be conducted within the context of resource, ecosystem, and community thresholds—levels of stress beyond which the desired condition degrades.” Thus, “each resource, ecosystem, and human community must be analyzed in terms of its ability to accommodate additional effects, based on its own time and space parameters.” Therefore, cumulative effects analysis normally will encompass geographic boundaries beyond the immediate area of the Proposed Action alternatives, and a timeframe including past actions and foreseeable future actions, to capture these additional effects. Bounding the cumulative effects analysis is a complex undertaking, appropriately limited by practical considerations. Thus, CEQ guidelines observe, “[i]t is not practical to analyze cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.”

4.1.1 Identifying Geographical Boundaries for Cumulative Impacts Analysis

Geographical boundaries or ROI for analyses of cumulative impacts in this EA vary for different resources and environmental media. For air quality, the potentially affected air quality region is the appropriate boundary for assessment of cumulative impacts from releases of pollutants into the atmosphere. For terrestrial biological resources, the area in which Proposed Action activities occur, or are proposed to occur, is the appropriate geographical area for assessing cumulative impacts. For wide-ranging or migratory wildlife, such as migratory birds, any impacts from the Proposed Action alternatives might combine with impacts from other sources within the ranges of each population.

4.1.2 Past, Present, and Reasonably Foreseeable Future Actions

Identifiable effects of actions occurring in the past and present are analyzed, along with reasonably foreseeable future actions to assess additive impacts of the Proposed Action alternatives. In general, the Navy need not list or analyze the effects of individual past actions; cumulative impacts analysis of past actions focus on aggregate effects. Other past, present, and reasonably foreseeable actions in the vicinity of the Proposed Action and alternatives with the potential to result in cumulative impacts are listed in Table 4-1.

**Table 4-1
Past, Present, and Reasonably Foreseeable Future Projects
in the NOLF IB Fence Replacement ROI**

No.	Project	Description	Status
1	NASNI, NBC Lodge Expansion	Demolition of four existing Navy lodge buildings and several smaller structures, and construction of a lodge building and cottages to increase room capacity; construction of recreation facilities, parking lots, road upgrades, retail shops, a restaurant, landscaping, and utility upgrades.	Past
2	The Marina at NAB Coronado, NBC	Erosion control, restoration of deteriorated marina facilities, and enhancement and expansion of existing recreational functions of the marina at NBC.	Past
3	Development of Home Port Facilities for the Three NIMITZ-Class Aircraft Carriers in Support of the Pacific Fleet	Construction and operation of facilities and infrastructure needed to support the capacity to homeport three NIMITZ-class nuclear-powered aircraft CVNs within the U.S. Pacific Fleet.	Past
4	AIMS Cable Array Installation	A cable array to extend from a proposed building on the Naval Radio Receiving Facility inland, onto the beach, into the water on oceanside Silver Strand Training Complex- South (SSTC-South), and within the boat lanes.	Past
5	USFWS Refuges Comprehensive Conservation Plan	Addresses topics of resources management, visitor use, refuge operations, and development in general terms.	Past
6	NBC Small Arms Range	Installation of a small arms firing range at NBC.	Past
7	RM09-0701 – Runway Repair at NOLF IB	A project commenced in January 2011 to replace asphalt and repair concrete on Runway 27 and the helicopter pads at NOLF IB. Construction on Runway 27 temporarily concentrated helicopter activity on the northern runway.	Past
8	Final EIS for the Introduction of the P-8A Multi-Mission Maritime Aircraft into the U.S. Navy Fleet	The home-basing of 12 P-8A Fleet Squadrons and one Fleet Replacement Squadron at established maritime patrol home bases. The P-8A is being introduced to replace the aging P-3C Orion aircraft. Currently, P-3C patrol squadrons have periodic detachments at NASNI.	Past
9	Advanced Training Command Relocatable Habitable Unit Immersion Training Village	Installation of relocatable habitable units with no foundation work required and no utilities at SSTC-South. Ten to 12 units installed in village configuration for advanced live-scenario training.	Past

No.	Project	Description	Status
10	City of Imperial Beach Commercial Zoning Review/Update	A comprehensive update of all three of the City's commercial zones that was approved by the City Council in 2012. The Zoning Update included the C/MU-1 Zone extending along Palm Avenue/SR-75 from the boundary with the City of Coronado to the City of San Diego. The City prepared a Draft Program Environmental Impact Report for this General Plan/Local Coastal Plan and Commercial Zoning Amendments Project.	Past
11	City of Imperial Beach Breakwater Shopping Center	A 46,200-square-foot retail shopping center at the southwest corner of 9th Street and Palm Avenue/SR-75 was approved in 2011.	Past
12	Silver Strand Training Complex EIS	Ongoing Naval training, testing, and evaluation activities within SSTC-South or in proximity to the southern beaches at NASNI. Components include continuing current training activities, increasing training tempo and types of training, conducting existing routine training at additional locations within SSTC-South established training areas, and increasing access to and availability of existing beach and inland training areas.	Past
13	Current, Emerging, and Future Training Operations in the Southern California (SOCAL) Range Complex	Within the SOCAL Range Complex, continuation of training, an increase in training activities, force structure changes associated with introduction of new weapons systems, new classes of ships, and the introduction of new types of aircraft into the Fleet.	Past
14	U.S. Navy Lighterage	Construction of a Waterfront Command and Control Facility for Amphibious Construction Battalion One facilities to support the introduction of the improved Navy Lighterage System at NAB Coronado.	Present
15	Dredging and Sand Replenishment Projects	San Diego Bay maintenance dredging was conducted; future projects such as SANDAG's Regional Beach Sand Replenishment Project are in planning stages for the City of Imperial Beach. Specific information on projects can be found on websites maintained by the projects' lead agencies, including USACE.	Present
16	Hawaii-Southern California Training and Testing EIS/Overseas EIS	Training and testing activities to be conducted within existing range complexes and operating areas located along the southern California coast (SOCAL Range Complex) and around the Hawaiian Islands. Activities would include sonar maintenance and gunnery exercises.	Present
17	MH-60 EA	The introduction of the MH-60S aircraft meets the Navy's need to support EOD MU-11 in its activities at SSTC. The Navy must ensure that adequate hangar, training, maintenance, and personnel support facilities are available to meet production and delivery schedules, and to satisfy operational commitments.	Present
18	Naval Special Warfare Indoor Shooting Range (P-876)	Construction of an indoor shooting range at SSTC-South. The shooting range will include two buildings; one building will be a two-story facility for the range, the other building will be a one-story building for administrative space and classrooms.	Present

No.	Project	Description	Status
19	Minehound Training Lanes	Establishment of training lanes for the identification and evaluation of improvised explosive devices at SSTC-South. Training would involve use of ground penetrating radar and metal detector.	Present
20	SSTC-South Main Gate Upgrades	Installation of reliable, maintainable, and cost-effective AT/FP Ashore Systems at the existing SSTC-South main gate. This would include an automated vehicle gate system with monitors, fencing, gate arms, and light poles. During construction, the main gate would remain open. Post-construction, the gate would have guards during peak hours and would be remotely operated during non-peak hours.	Present
21	Fitness Complex (P-705), NASNI	Construction of a new fitness complex (90,000 square feet) and liberty center (17,000 square feet).	Present
22	Golf Maintenance Compound, NASNI	Replacement of inadequately sized and deteriorated golf course maintenance facility with two 4,000-square-foot maintenance buildings within a 42,000-square-foot maintenance yard.	Present
23	Boat Storage Facility (P-896), NAB Coronado	Construction of a 20,000-square-foot covered boat storage facility.	Present
24	Mobile Security Forces and Naval Special Clearance Team-One Pier and Boat Ramp	Provision of facilities for the co-location of two new commands at NASNI, the Mobile Security Forces and the Naval Special Clearance Team-One, including construction of a pier, boat ramp, and several buildings; paving; site improvements with security fencing and lighting, landscaping, and irrigation; and a paved vehicle storage yard.	Reasonably Foreseeable
25	Homebasing of the MK-VI Patrol Boats for Coastal Riverine Group One (CRG-1) at NAB Coronado	The MK-VI Patrol Boat (MK-V PB) is the Navy's next generation patrol boat and will become part of the Navy Expeditionary Combat Command's fleet of combatant craft. The MK-VI PB is an 85-foot boat with a hull designed to optimize performance, fuel economy, and firepower. Facilities upgrades will be required to support berthing.	Reasonably Foreseeable
26	Maintenance Pier Dredging at NASNI and NAB Coronado	Maintenance pier dredging surrounding Piers Bravo, J, K, L, M, N, O, and P at NASNI and piers around NAB Coronado.	Reasonably Foreseeable
27	Lock and Leave Facility, NASNI	Construction of a storage facility (75,000-square-foot area) capable of containing 1,200 storage units.	Reasonably Foreseeable
28	Steam Decentralization Project, NASNI	Decentralization of the steam distribution system throughout NASNI.	Reasonably Foreseeable
29	Bachelor Quarters (P-730), NASNI	Construction of bachelors quarters housing to meet the Navy's policy to house single sailors on shore vice onboard ship or off base.	Reasonably Foreseeable
30	Sign and marker replacement project, SSTC-North and NAB Coronado.	Replacement of beach marker signs and various structures along SR-75.	Reasonably Foreseeable

No.	Project	Description	Status
31	Palm Avenue and Carnation Avenue Street End Project	Port of San Diego project that would improve and enhance coastal access to and along the beach at the ends of these streets. Palm Avenue improvements have been constructed. Carnation Avenue portion, located at the south end of SSTC-South adjacent to YMCA Camp Surf, is dependent upon the Navy granting a 20-foot easement, which is yet to be funded.	Reasonably Foreseeable
32	NBC Coastal Campus	Design and construction of logistical support buildings, equipment use and maintenance training facilities, classroom and tactical skills instruction buildings, storage and administrative facilities, utilities, fencing, roads, and parking to support Naval Special Warfare Command and SSTC-South.	Reasonably Foreseeable

4.2 CUMULATIVE IMPACTS ANALYSIS

4.2.1 Topography, Geology, and Soils

Cumulative impacts on terrestrial NOLF IB topography, geology, and soils would consist of the combined effects of the NOLF IB Fence project and other Navy actions at NOLF IB that alter the local topography or disturb surface soils. New construction projects would remove ground cover; disturb surface soils; alter surface drainage patterns; and, by increasing the ground coverage of impervious surfaces, increase the volume of surface water flows during storms. These new activities, along with elements of the proposed NOLF IB Fence project (see Section 3.1), could contribute locally and incrementally to increased sediment transport and deposition. BMPs for soil-disturbing activities would, however, be implemented for any construction activity, avoiding or minimizing impacts. Therefore, when added to the impacts from other potentially cumulative projects, the Proposed Action would not result in significant cumulative impacts to topography, geology, and soils.

4.2.2 Water Quality and Hydrology

The ROI for water quality and hydrology is the project area and immediately surrounding areas. Construction of the Proposed Action would not have the potential to contribute to cumulative water quality and hydrology impacts at NOLF IB, as impacts would be short term and temporary. Throughout construction, the Proposed Action would be required to incorporate hydrology/water quality control measures mandated by the Construction General Permit, Order 2009-0009-DWQ. In accordance with these requirements, a SWPPP, along with applicable BMPs, would be implemented to control erosion, minimize sediment transport, and protect surface waters.

Operations and maintenance of the Proposed Action would not have the potential to contribute to cumulative water quality and hydrology impacts. The Proposed Action would be required to implement post-construction BMPs in compliance with applicable regulatory requirements (i.e., Construction General Permit, Order 2009-0009-DWQ) to reduce storm water pollution and prevent water quality degradation. Project design avoids impacts to the floodplain and provides slope and erosion protection.

Other cumulative projects would also be required to incorporate specific measures and procedures into project designs and operational plans. These projects would be required to implement BMPs to avoid or minimize erosion, sedimentation, and water quality degradation during construction and operations. Examples of such measures and procedures include, but are not limited to, (1) ensuring that storm water discharges are in compliance with all pertinent regulations such as the CWA, and (2) adherence to appropriate permits and plans such as NPDES permits. Therefore, when added to the impacts from other potentially cumulative projects, the Proposed Action would not result in significant cumulative impacts to hydrology and water quality.

4.2.3 Biological Resources

The combined biological impacts of the Proposed Action are discussed in Section 3.3.3 of this EA. All federal activities within NOLF IB potentially affecting federally protected species and habitats would be subject to ESA Section 7 consultation. The Navy has initiated an informal consultation with USFWS, which is ongoing at this time. The reasonable and prudent measures, terms and conditions, and conservation recommendations included in the informal consultation determination will be implemented. In addition, the Navy, in concert with USFWS, has established plans and conditions throughout NBC to protect, preserve, and conserve natural resources to minimize significant cumulative impacts. These conditions are identified in several BOs issued by USFWS, Navy training and operations guidelines, and the NBC INRMP. The most sensitive species and habitats on NOLF are protected through these procedures and policies, and construction and conservation measures based on previous BOs have been incorporated into the mitigation section for biological resources (Sections 2.5 and 3.3.3).

Implementation of the Proposed Action in conjunction with other projects within the cumulative ROI (listed in Table 4-1 of this EA) could result in the cumulative loss of biological resources in the form of vegetation, habitat, and species. The area of influence where cumulative impacts could occur varies among the resources affected. Due to the restricted range of several species on NOLF IB, the potential for cumulative impacts from various projects and actions across the geographic range of a species is possible when viewed from a population perspective. Future cumulative impacts could result from the collective loss of species habitat over time. The Proposed Action, however, is not anticipated to contribute to cumulative impacts to federally listed plants or wildlife because no occupied habitat would be permanently, directly impacted. Although there are permanent and temporary indirect impacts associated with the Proposed Action, these are not anticipated to adversely affect federally listed species or occupied habitat, and, therefore, would not contribute to cumulative impacts.

Unavoidable impacts to federally jurisdictional wetlands (as well as other waters of the U.S.) as a result of the implementation of the Proposed Action would require a USACE CWA Section 404 Permit for placement of dredged or fill material within waters of the U.S. and RWQCB CWA Section 401 state water quality certification for an action that may result in degradation of waters of the state. Compensatory mitigation for both temporary and permanent impacts would be determined during the permitting process. Although there would be impacts to jurisdictional waters of the U.S. from the Proposed Action, compliance with the mitigation requirements set forth in Section 404 Permit and

Section 401 state water quality certification would ensure no incremental contribution of the Proposed Action to regional cumulative impacts. The Section 404 Permit would require habitat compensation at a replacement ratio of at least 1:1, which would ensure a no net loss of wetlands. The Section 401 state water quality certification would include measures to ensure that no degradation to water quality would occur. As such, the Proposed Action would not contribute to cumulative impacts to these resources.

4.2.4 Cultural Resources

Cumulative impacts on cultural resources would consist of the effects of the Proposed Action in combination with other projects, actions, and processes that would result in potential impacts on cultural, archaeological, and historic sites. Projects listed in Table 4-1 that are ground-disturbing or that alter, repair, or improve historic buildings, structures, or objects have the potential for cumulative effects. Similar to the Proposed Action, the cumulative projects would also be subject to all federal, state, and local regulations—as appropriate—mandating the protection of cultural resources. Impacts would typically be mitigated through avoidance or data recovery.

As dictated by the NHPA, the Navy is obligated to protect its own historic properties in a way that emphasizes preservation and minimizes the impact of undertakings that might individually or cumulatively adversely affect such properties. Off-site cumulative projects must comply with the California Environmental Quality Act, NEPA, NHPA, and all other cultural federal, state, and local regulations that require analysis and appropriate mitigation of impacts to cultural resources. Therefore, the Proposed Action, when added to the impacts from other potentially cumulative projects, would not result in significant cumulative impacts to cultural resources.

4.2.5 Air Quality and Climate Change

As described in Section 3.5 of this EA, construction of the Proposed Action would result in the emission of local and regional air pollutants, but would not directly result in a significant impact. The Proposed Action would conform to the SDAB SIP and would not require a conformity determination in compliance with Section 176(c) of the CAA. The ROI considered in air quality and GHGs includes NOLF IB.

Cumulative impacts resulting from the Proposed Action, in conjunction with impacts from other present and reasonably foreseeable future projects listed in Table 4-1, would potentially occur during proposed construction activities. Cumulative local air quality impacts would consist of the combined effects of the NBC Coastal Campus projects and other Navy actions at SSTC-South, NAB Coronado, and NASNI that disturb surface soils and generate emissions from the combustion of fossil fuels. Emissions from past projects are evident in the regional ambient air quality in the SDAB. Proposed construction activities would generate emissions, and any concurrent emissions-generating action in the vicinity would potentially contribute to the ambient impact of these emissions.

Due to the temporary nature of construction emissions and relatively minor amount of emissions, regional construction emissions from the Proposed Action in conjunction with the development of the projects

listed in Table 4-1 would not result in a cumulatively significant impact. Moreover, implementation of fugitive dust control measures would ensure that all PM emissions from proposed construction and operational activities within the project region, in combination with any reasonably foreseeable future emissions source, would not produce significant cumulative effects. With these measures, temporary dust associated with construction would be confined to the site area and would not cumulatively interact with dust generated from other projects. In addition, the Proposed Action would have negligible TAC emissions and would not result in a direct or cumulatively significant impact.

Greenhouse Gases

Scientists are in general agreement that Earth's climate is gradually changing, and that change is due, at least in part, to emissions of CO₂ and other GHGs from human sources. The anticipated magnitude of global climate change is such that a significant cumulative impact on global climate exists.

The potential effects of proposed GHG emissions are global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. Therefore, an appreciable impact on global climate change would only occur when proposed GHG emissions combine with GHG emissions from other human activities on a global scale. Since GHG emissions from the Proposed Action would equate to such a minimal amount of the U.S. inventory, they would not substantially contribute to global climate change.

Currently, there are no formally adopted or published NEPA thresholds of significance for GHG emissions. Therefore, this EA compares GHG emissions that would occur from implementation of the Proposed Action to the CEQ draft NEPA guidance level of the 25,000 metric tons of CO₂e (CEQ 2014) and the 2009 U.S. net GHG baseline inventory of 2013 (USEPA 2015b) to determine the relative increase in proposed GHG emissions.

Table 4-2 summarizes the annual GHG emissions associated with the Proposed Action. Appendix D provides an estimate of GHG emissions generated by the Proposed Action.

**Table 4-2
Estimated GHG Emissions from Implementation of the Proposed Action**

Scenario/Activity	Metric Tons per Year*			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Construction GHG Emissions	37.74	0.01	0	37.90
Operational GHG Emissions	33.09	0.01	0	32.28
Total Proposed Action GHG Emissions	70083	0.02	0	71.18
Draft NEPA Threshold ^(a)	-	-	-	25,000
U.S. 2013 Baseline Emissions (10 ⁶ metric tons) ^(b)	-	-	-	6,673

CO = carbon monoxide; CH₄ = methane; N₂O = nitrous oxide; CO₂ = carbon dioxide; GHG = greenhouse gas;

NEPA = National Environmental Policy Act

Notes: *CO₂e = (CO₂ * 1) + (CH₄ * 21) + (N₂O * 310).

Sources: ^(a)CEQ 2014; ^(b)USEPA 2015b.

As shown in Table 4-2, the CO₂e emissions associated with the Proposed Action would be below the draft NEPA guidance threshold (CEQ 2014) and the 2009 U.S. net GHG baseline inventory (USEPA 2015b). Therefore, the Proposed Action would not substantially contribute to global climate change, and cumulative impacts to global climate change from implementation of the Proposed Action would be less than significant.

Although implementation of the Proposed Action would only cause negligible cumulative impacts associated with global climate change, this important topic warrants discussion of Marine Corps and Navy leadership in broad-based programs to reduce energy consumption and shift to renewable and alternative fuels, thereby reducing emissions of CO₂ and other GHGs.

On May 21, 2010, the U.S. Navy prepared a memorandum, Navy Climate Change Roadmap, which provides a list of Navy actions to assess, predict, and adapt to global climate change from Fiscal Year 2010–2014. Following climate change guidance in the 2010 Quadrennial Defense Review, the Navy Climate Change Roadmap is an extension of the Navy Arctic Roadmap (U.S. Navy 2010). The DoD has also prepared a Strategic Sustainability Performance Plan.

The Secretary of the Navy established several goals for reducing the Navy's consumption of fossil fuels:

- Mandate that energy usage, efficiency, life-cycle costs, and other such factors be part of the Navy's decision when acquiring new equipment or systems, as well as vendor efficiency or energy policies;
- Cut petroleum use by half in the Navy's fleet of commercial vehicles by 2015 by phasing in new hybrid trucks to replace older ones;
- Procure half the power at Navy shore installations from alternative energy sources, including wind or solar, by 2020 and, where possible, supply energy back to the grid, as the Navy does today at Naval Air Weapons Station China Lake, California; and
- Reach the point that half the energy used throughout the Navy, including in ships, aircraft, vehicles, and shore stations, comes from alternative fuel or alternative sources by 2020. Today that percentage is about 17 percent.

These examples illustrate the leadership role that the Navy has in achieving energy reductions, which will contribute to the national effort to mitigate global climate change. The Proposed Action's buildings and facilities would be designed following established principles of sustainability, thereby meeting the standards set forth in EO 13423, EO 13514, and the Energy Independence and Security Act, as well as applicable Navy guidelines and regulations.

In addition to assessing the GHG emissions that would come from the Proposed Action and the potential impact on climate change, the effect of climate change on the Proposed Action and what adaptation strategies would be developed in response is also assessed. This is a global issue for DoD. As is clearly

outlined in the Quadrennial Defense Review Report of February 2010 (DoD 2010), DoD will need to adjust to the impacts of climate change on facilities and military capabilities. DoD already provides environmental stewardship at hundreds of DoD installations throughout the United States and around the world, working diligently to meet resource efficiency and sustainability goals set by relevant laws and EOs. Although the United States has significant capacity to adapt to climate change, it will pose challenges for civil society and DoD alike, particularly in light of the nation's extensive coastal infrastructure.

DoD operational readiness hinges on continued access to land, air, and sea training and test space. Consequently, DoD must complete a comprehensive assessment of all installations to assess the potential impacts of climate change on its missions and adapt as required (DoD 2010). In 2008, the National Intelligence Council judged that more than 30 U.S. military installations were already facing elevated levels of risk from rising sea levels. As noted in Section 3.1.1.3, NOLF IB is situated within a low-lying, relatively flat coastal area south of San Diego Bay within the Tijuana River Valley. The elevation range along the NOLF IB fenceline is approximately 8 to 24 feet above mean sea level. Global sea level change projections range from 1- to 4-foot rises by 2100 (Garfin, Franco, Blanco, Comrie, Gonzalez, Piechota, Smyth, and Waskom 2014). Based on these projections, the project components for the proposed NOLF IB perimeter fence replacement would be located at higher elevations than the area potentially inundated due to sea level rise. Therefore, no climate change-related sea level rise impacts would be anticipated for the Proposed Action at least through the year 2100.

The Quadrennial Defense Review Report (DoD 2010) illustrates that DoD will work to foster efforts to assess, adapt to, and mitigate the impacts of climate change. Domestically, DoD will leverage the Strategic Environmental Research and Development Program, a joint effort among DoD, the Department of Energy, and USEPA, to develop climate change assessment tools.

As the science of climate change advances, the Navy will regularly reevaluate climate change risks and opportunities to develop policies and plans to manage its effects on the Navy's operating environment, missions, and facilities.

4.2.6 Noise

Cumulative impacts on the acoustical environment would consist of the effects of the Proposed Action when added to other projects, actions, and processes that would result in an increase in intrusive noise sources, a substantial long-term increase in average ambient noise levels, or a substantial increase in the number of impulsive sound events. The ROI for the acoustical environment consists of NOLF IB and adjacent public areas. Under the Proposed Action, construction activities could result in a temporary intrusive noise event in proximity to residences, but average hourly sound levels would generally not result in an adverse effect. Construction activities would not violate Navy, other federal, state, regional, or local noise standards or requirements. Therefore, cumulative effects from these increases in noise levels would be minimal. NBC is home to two naval air installations: NASNI and NOLF IB. Helicopters flying in and out of NOLF IB and between NASNI and NOLF IB (via north-south routes along San Diego Bay

or the Pacific Ocean) for training generate several hundred helicopter flights per day. Although most of the flights occur offshore over the bay or ocean, the helicopter traffic contributes to the background noise level in the vicinity of NOLF IB.

Several local construction projects would generate short-term intrusive noise. Traffic volume increases on major roads would be insufficient to substantially affect long-term background noise levels. Traffic noise in the ROI from the NOLF IB, and in combination with other proposed new sources of vehicular traffic, would be minimal. Therefore, when added to the impacts from other potentially cumulative projects, the Proposed Action would not result in significant cumulative impacts to noise.

4.2.7 Public Health and Safety

Cumulative impacts on public health and safety would consist of the aggregate effects of the NOLF IB projects, actions, and processes that could increase risks to people within the ROI. The ROI for public health and safety consists of NOLF IB and adjacent public areas. Effects would include danger from proximity to construction vehicles and equipment. Construction activities would be confined to the NOLF IB boundaries and would not expose the public to health and safety risks. The Navy has specific and documented procedures in place to ensure that nonparticipants are not endangered by Navy operational actions. The incremental impacts of the Proposed Action would not represent any appreciable contribution to cumulative health and safety risks when added to other past, present, and reasonably foreseeable future actions. Therefore, when added to the impacts from other potentially cumulative projects, the Proposed Action would not result in significant cumulative impacts on public health and safety.

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CHAPTER 5.0

OTHER CONSIDERATIONS REQUIRED BY NEPA

5.1 POSSIBLE CONFLICTS WITH OBJECTIVES OF FEDERAL, STATE, AND LOCAL PLANS, POLICIES, AND CONTROLS

Implementation of the Proposed Action would not conflict with the objectives or requirements of federal, state, regional, or local plans, policies, or legal requirements. The Navy has consulted with regulatory agencies as appropriate during the NEPA process and before implementation of the Proposed Action to ensure that requirements are met. Table 5-1 provides a summary of environmental compliance requirements that may apply.

Table 5-1
Summary of Environmental Compliance for the Proposed Action

Plans, Policies, and Controls	Responsible Agency	Status of Compliance
The National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] §§ 4321 et seq.); Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [C.F.R.] §§ 1500–1508); Department of the Navy Procedures for Implementing NEPA (32 C.F.R. § 775)	U.S. Navy	This Environmental Assessment (EA) was prepared in accordance with NEPA, CEQ regulations, and Navy NEPA procedures. Public participation and review have been conducted in compliance with NEPA.
Clean Air Act (CAA) (42 U.S.C. §§ 7401 et seq.); CAA General Conformity Rule (40 C.F.R. § 93[B]); State Implementation Plan (SIP)	U.S. Environmental Protection Agency (USEPA), San Diego Air Pollution Control District	The Proposed Action would be compatible with attainment and maintenance goals established in the SIP. A CAA conformity determination would not be required because emissions attributable to the Proposed Action alternatives would be below the <i>de minimis</i> thresholds for requiring a full conformity determination, and the General Conformity Rule is therefore not applicable. A signed Record of Non-Applicability is included in Appendix E.
Federal Water Pollution Control Act (Clean Water Act [CWA]) (33 U.S.C. §§ 1344 et seq.)	USEPA	CWA Section 401 water quality certification and CWA Section 404 permit would be prepared for the proposed construction activities.
Endangered Species Act (ESA) (16 U.S.C. §§ 1531 et seq.)	U.S. Navy, U.S. Fish and Wildlife Service	The EA and BA analyze potential effects to species listed under the ESA. In accordance with ESA requirements, the Navy would undergo consultation in compliance with Section 7 of the ESA. Consultation was initiated on July 8, 2015. The USFWS has indicated it will issue an Informal Consultation Concurrence Letter, which will be incorporated into the Final EA.
The Sikes Act of 1960 (16 U.S.C. §§ 670a–670o, as amended by the Sikes Act Improvement Act of 1997, Pub. Law No. 105-85)	Department of Defense (DoD)	The Proposed Action alternatives would be implemented in accordance with the management and conservation criteria developed in the Sikes Act Integrated Natural Resources Management Plans for NBC.
National Historic Preservation Act (16 U.S.C. §§ 470 et seq.) including the Archaeological Resources Protection Act	U.S. Navy	The Proposed Action would be implemented in compliance with Section 106 through the <i>Programmatic Agreement among the Commander Navy Region Southwest, the Advisory Council on Historic Preservation, and the</i>

Plans, Policies, and Controls	Responsible Agency	Status of Compliance
		<i>California State Historic Preservation Officer Regarding Navy Region Southwest Undertakings within the San Diego Metropolitan Area, California</i> , and pursuant to the criteria developed by the Navy for cultural resources management practices.
National Register of Historic Places (NRHP) (36 C.F.R. § 60)	U.S. Navy	Cultural resources potentially affected by the Proposed Action were evaluated for eligibility for the NRHP pursuant to criteria specified in 36 C.F.R. § 60.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) Pub. Law 101-601)	U.S. Navy	Consultation required by NAGPRA with the appropriate culturally affiliated Native American tribes would be implemented if human remains and objects of cultural patrimony are encountered during implementation of the Proposed Action.
Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	U.S. Navy	Implementation of the Proposed Action alternatives was reviewed in accordance with EO 12898 and would not result in any disproportionately high and adverse human health or environmental effects on minority or low-income populations.
EO 13045, Protection of Children from Environmental Health Risks and Safety Risks	U.S. Navy	Implementation of the Proposed Action alternatives was reviewed in accordance with EO 13045 and would not result in disproportionate environmental health or safety risks to children.
EO 13112 Invasive Species	U.S. Navy	EO 13112 requires agencies to identify actions that may affect the status of invasive species and to take measures to avoid introduction and spread of these species. Adoption of avoidance and minimization measures incorporated into this EA fulfills this requirement.
EO 11990 Protection of Wetlands	U.S. Navy	Section 2(b) of EO 11990 requires federal agency action when there would be a significant impact to wetlands. Implementation of the Proposed Action alternatives would not have a significant impact on wetlands.
Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703–712)	USFWS	EO 13186 requires federal agencies to develop and implement an MOU with the U.S. Fish and Wildlife Service that shall promote the conservation of migratory bird populations. An MOU was established with DoD in 2006 that describes specific actions to advance migratory bird conservation and avoid take of migratory birds. Impact avoidance and minimization measures incorporated into the EA are designed to comply with the requirements of the MBTA, the MOU, and EO 13186.

5.2 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. The majority of activities addressed in this EA would be categorized as long term. For example, structural improvement activities (construction) would be of short duration, but operation activities would be long term and would, in turn, potentially affect the long-term productivity of environmental resources on-site. The Navy's proposal to improve erosion control is an example of the balancing of long-term productivity of the environment with the need to address the shortfall of current facilities to support the mission of NOLF IB.

5.3 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires that environmental analysis include identification of “any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.” Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy or minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., the disturbance of a cultural site). Construction activities associated with the perimeter fence and structural improvements at NOLF IB would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline (for construction equipment). Implementation of the Proposed Action alternatives would require fuels used by ground-based vehicles. Fuel use by ground-based vehicles involved in construction and operational support activities would increase. Therefore, total fuel consumption would increase, and this nonrenewable resource would be considered irreversibly lost.

5.4 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Implementation of the Proposed Action would not result in an increase in energy demand over the No Action Alternative (exclusive of construction itself).

5.5 NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS AND CONSERVATION POTENTIAL

Resources that would be permanently consumed by Proposed Action implementation include water, electricity, natural gas, and fossil fuels, but only during construction. To the extent practical, pollution prevention considerations would be included as part of the Proposed Action. In addition, sustainable management practices are in place that protect and conserve natural and cultural resources.

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