

Draft

Environmental Assessment Clear Zone Maintenance



**Marine Corps Air Station
Camp Pendleton, California**

December 2019

Draft

**Environmental Assessment for Clear Zone Maintenance
Marine Corps Air Station Camp Pendleton, California**

Lead Agency for the

Environmental Assessment: United States Department of the Navy

Title of Proposed Action: Clear Zone Maintenance at Marine Corps Air Station Camp Pendleton, California

Affected Region: San Diego County, California

Designation: Environmental Assessment

Abstract

The United States (U.S.) Department of the Navy and the U.S. Marine Corps have prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 and other applicable laws. This EA analyzes the potential environmental impacts resulting from the proposed maintenance and management of vegetation southwest of the runway at Marine Corps Air Station Camp Pendleton to conform to the Primary Surface, Clear Zone, and Transition Zone safety requirements. The EA evaluates the Proposed Action and the No-Action Alternative. This EA includes a detailed analysis of the Proposed Action's potential environmental consequences on the following resources: biological resources, cultural resources, and public health and safety.

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December 2019

EXECUTIVE SUMMARY

The United States (U.S.) Department of the Navy (DoN) and the U.S. Marine Corps (USMC) have prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code §§ 4321-4370h), as implemented by the Council on Environmental Quality implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Marine Corps Order 5090.2, dated 11 June 2018, *Environmental Compliance and Protection Program*, that establishes USMC procedures for implementing NEPA. The DoN and USMC prepared this EA to analyze the potential environmental impacts resulting from the proposed maintenance and management of vegetation southwest of the runway at Marine Corps Air Station (MCAS) Camp Pendleton to conform to the Primary Surface, Clear Zone, and Transition Zone safety requirements.

The purpose of the Proposed Action is to help ensure the safety of MCAS Camp Pendleton air operations within the MCAS Camp Pendleton Primary Surface, Clear Zone, and Transition Zone by maintaining and managing vegetation southwest of the MCAS Camp Pendleton runway.

The Proposed Action would allow MCAS Camp Pendleton to conform to the Department of Defense and DoN airfield safety and planning regulations (e.g., Naval Facilities Engineering Command [NAVFAC] P-971, Appendix E of NAVFAC P-80.3, and Unified Facilities Criteria 3-260-01). The vegetation in the project area exceeds the height limits specified in the airfield safety and planning regulations. Conformance with the airfield safety and planning regulations is needed for MCAS Camp Pendleton to accomplish its mission in a safe manner, free of obstacles that would otherwise increase the risk of an aircraft accident.

The Proposed Action consists of transitioning 25.29 acres (10.23 hectares) of existing riparian habitat southwest of the runway to grassland habitat, and maintaining it as such through regular monitoring and management. Vegetation management and maintenance would begin in 2020 and occur indefinitely to ensure airfield safety and planning regulations are met in perpetuity. MCAS Camp Pendleton anticipates compensating for the impacts to riparian habitat at an off-station U.S. Fish and Wildlife-approved mitigation bank. Alternatively, the Proposed Action also includes an analysis of compensating for the riparian habitat impacts at one or both of two mitigation sites identified at Marine Corps Base (MCB) Camp Pendleton. This EA analyzes the Proposed Action and the No-Action Alternative.

Under the No-Action Alternative, vegetation would not be managed and maintained southwest of the MCAS Camp Pendleton runway. As such, the existing vegetation would continue to penetrate the Primary Surface, Clear Zones, and Transition Zones, and MCAS Camp Pendleton would continue to be out of conformance with safety regulations.

The following resource areas were evaluated for potential environmental consequences: biological resources, cultural resources, and public health and safety. Table ES-1 summarizes the potential environmental consequences, as well as conservation measures associated with implementation of the Proposed Action and the No-Action Alternative. As shown in Table ES-1, no significant impacts to any resource area would occur with implementation of the Proposed Action.

Table ES-1. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
Biological Resources		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> The proposed transition of 25.29 acres (10.23 hectares) of riparian habitat to grassland would be mitigated for, consistent with the Riparian Ecosystem Conservation Plan and Riparian/Estuarine Biological Opinion (BO) (hereafter referred to as the Riparian BO) (USFWS 1995a) and following Endangered Species Act (ESA) Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS), through a combination of Riparian BO ledger deductions and compensatory mitigation at a ratio of 1:1. Compensatory mitigation would occur either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat at either of the two alternative mitigation sites on Marine Core Base (MCB) Camp Pendleton that are analyzed in this Environmental Assessment (EA). General Conservation Measures (CMs) and species-specific CMs from the ESA consultation would be implemented under the Proposed Action.</p>	<p><u>No Impact</u> There would be no change in existing conditions.</p>
<i>Conservation Measures</i>	<p><i>General Conservation Measures</i> BR-1 No access roads (temporary or permanent) would be constructed as part of the Proposed Action. BR-2 During riparian tree removal, ground disturbance would be minimized by grinding tree stumps to the ground. Riparian tree stumps would also be treated with herbicide to prevent regrowth (see CM 6 below). A small bulldozer, such as a Caterpillar® D-5, would be used as needed to load trucks or grade the resulting surface to prevent water from ponding. BR-3 Woody debris would be removed from the project area. BR-4 The proposed project would have a total area of greater than 1 acre (0.4 hectare) of soil disturbance and therefore would be required to obtain coverage under the California Construction General Permit for stormwater: State Water Resources Control Board Order No. 2009-0009-DWQ (National Pollutant Discharge Elimination System No. CAS 000002). A Notice of Intent would be submitted to the Regional Water Quality Control Board and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared for the project. A copy of the SWPPP would be kept at the project area. Marine Core Air Station (MCAS) Camp Pendleton personnel responsible for stormwater management would oversee implementation and enforcement of the SWPPP. The SWPPP would incorporate best management practices for erosion and sedimentation controls, such as silt fences, silt basins, gravel bags, or other measures to control erosion and prevent the release of contaminants that could be harmful to federally listed species. BR-5 Exposed soils would be temporarily protected from erosion as necessary during rainfall events, and erosion and sedimentation controls would be installed immediately downslope of work areas. Erosion and sediment control measures would be maintained until work is completed and graded areas have been planted. BR-6 Only MCAS Camp Pendleton-approved herbicides/pesticides would be used. Herbicide/pesticide application would be in accordance with MCAS Camp Pendleton’s Exotic Species Control and Vegetation Maintenance Plan (NAVFAC Southwest 2016). Applicators shall be properly trained and certified. Excessive use and spraying before storm events would be avoided. Records of herbicide/pesticide use shall be submitted to MCAS Camp Pendleton in conformance with its Integrated Pest Management Plan (MCAS Camp Pendleton 2014).</p>	<p>No measures identified.</p>

Table ES-1. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<p><i>Conservation Measures</i></p>	<p>BR-7 Vehicles used in vegetation maintenance and potential habitat mitigation activities would be power-washed before entering MCAS and/or MCB Camp Pendleton to prevent weed transport to reduce the chance of disseminating weed propagules. All personnel working on this project should use a brush to brush off the weed seeds from their shoes before entering the project area. Vehicles and equipment must be clean and leak free and drip pans must be placed under parked vehicles.</p> <p>BR-8 An Oil Spill Response Plan would be prepared and reviewed and approved by appropriate federal, state, and local agencies. The Oil Spill Response Plan is required under state and federal regulations (Senate Bill 2040 and 40 CFR Part 300, the <i>National Oil and Hazardous Substances Pollution Contingency Plan</i>). The Oil Spill Response Plan would provide a list of emergency service providers. All work on MCAS Camp Pendleton would be carried out in accordance with the procedures outlined in the <i>MCAS Camp Pendleton Oil Spill Contingency Plan</i> (MCAS Camp Pendleton 2008).</p> <p>BR-9 To ensure the project does not result in takes of migratory birds, including listed species, initial vegetation transition work, recurring vegetation maintenance, and any potential habitat mitigation activities would occur between 1 September and 14 February, outside the avian breeding season (15 February to 31 August). Therefore, no pre-activity nest surveys would need to occur.</p> <p>BR-10 Impacts to 25.29 ac (10.23 ha) of riparian habitat occupied by federally listed species would be mitigated, consistent with the Riparian BO (USFWS 1995a), and consistent with results from ESA Section 7 consultation with the USFWS, through a combination of Riparian BO ledger deductions and compensatory mitigation at a ratio of 1:1. Compensation for individual impacts to habitat occupied by arroyo toad (ARTO), least Bell’s vireo (LBVI), and/or southwestern willow flycatcher (SWFL) is not additive, as some areas may be occupied by more than one species. Compensation is based on the total amount of each riparian habitat impacted multiplied by the appropriate mitigation ratio for that habitat. MCAS Camp Pendleton would offset any unavoidable permanent impacts to riparian habitats via purchase of credits from a USFWS-approved, offsite mitigation bank. In the event offsite mitigation is not available, feasible, or acceptable, MCAS Camp Pendleton would offset permanent riparian impacts on MCB Camp Pendleton, at a location mutually agreed upon with the USFWS. If mitigation were to occur on MCB Camp Pendleton, MCAS Camp Pendleton would manage the mitigation according to a Habitat Management Plan (HMP) that would be approved by the USFWS prior to implementation.</p> <p>BR-11 Before implementing vegetation maintenance and/or potential habitat mitigation activities, the USFWS would be notified and all the terms and conditions in the BO issued for this project would be implemented.</p> <p>BR-12 The project biologist would have the ability to halt vegetation clearing, maintenance, and potential habitat mitigation activities, if necessary, to avoid unanticipated impacts to sensitive resources. If it is necessary to halt activities, the project biologist would contact the MCAS Camp Pendleton Environmental Department (MCAS Environmental) immediately to discuss appropriate actions, unanticipated impacts, and avoidance measures. As needed, MCAS Environmental would confer with the USFWS to ensure the proper implementation of species and habitat protection measures. The project biologist would provide a brief written report of the incident within 24 hours of the action to MCAS Environmental.</p>	<p>No measures identified.</p>

Table ES-1. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<p><i>Conservation Measures</i></p>	<p><i>Species-Specific Conservation Measures</i> <u>Arroyo Toad</u></p> <p>BR-13 A project biologist would be designated/approved by MCAS Environmental. The project biologist would have at least 2 years of independent experience conducting ARTO surveys, as well as demonstrated experience in handling the species.</p> <p>BR-14 Temporary silt fencing would be installed around the perimeter of all work areas, including MCB Camp Pendleton alternative mitigation sites, where ground disturbance is to occur within suitable ARTO habitat with the project biologist present.</p> <ul style="list-style-type: none"> a) The silt fencing would be installed at least 14 days before vegetation removal to allow enough time for ARTO surveys to be completed during optimal weather conditions. b) Such fencing would consist of woven nylon netting approximately 3 feet (0.9 meter) in height attached to wooden stakes. This would prevent movement of ARTOs into the project footprint. c) Before installing the fencing, a narrow trench approximately 6 inches (15 centimeters) deep would be excavated and the fence buried to prevent burrowing beneath the fence. If trenching is not possible, the bottom lip of the fence would have sand bags laid against it to hold it in place and deter ARTOs from burrowing under the fence. d) All fencing materials (i.e., mesh, stakes) would be removed following vegetation management activities. <p>BR-15 After exclusionary fencing has been installed, but before initiation of vegetation management activities and/or potential habitat mitigation activities, at least three nighttime surveys for ARTOs would be conducted within the fenced area by the project biologist. These surveys would be conducted during appropriate climatic conditions and during the appropriate hours (i.e., evenings, nights, and mornings) to maximize the likelihood of encountering ARTOs. If climatic conditions are not highly suitable for arroyo toad activity (no natural rainfall), ARTO habitat in the project footprint may be watered to encourage aestivating ARTOs to surface. All ARTOs found within the project area would be captured and translocated by the project biologist to the nearest suitable riparian habitat on the MCB Camp Pendleton side of the levee. ARTOs found within the MCB Camp Pendleton alternative mitigation sites would be translocated to suitable habitat outside of the fenced area(s). Upon completion of these surveys and before initiation of project activities, the project biologist would report the capture and release locations of all ARTOs found and relocated during these initial surveys to MCAS Environmental, who would report the findings to the USFWS.</p> <p>BR-16 After the initiation of vegetation management and/or potential habitat mitigation activities, the project biologist would be present each morning before project activities begin and during removal of excavation unit covers and soil stockpile tarps. The project biologist would check the integrity of the ARTO fence and remove and relocate any ARTOs that may have entered the area.</p> <p>BR-17 To the greatest extent possible, access to work sites would occur via preexisting access routes. Project-related vehicle travel would be limited to daylight hours, as ARTO movement across roadways occurs primarily during nighttime hours.</p>	<p>No measures identified.</p>

Table ES-1. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<i>Conservation Measures</i>	<p>BR-18 Ingress and egress of project equipment and personnel would be kept to a minimum and would use a single access point to the site(s) where possible. Where movement of ARTOs into the project area or MCB Camp Pendleton alternative mitigation sites is possible, a road grate with a design approved by MCAS Environmental would be installed at access points to prevent movement of ARTOs into the enclosed area. Road grates would be inspected every morning for ARTOs by the project biologist.</p> <p>BR-19 Any dirt/sand piles left overnight would be covered with tarps or plastic with the edges sealed with sandbags, bricks, or boards to prevent ARTOs from burrowing into the dirt. Holes or trenches would be covered with material such as plywood or solid metal plates with the edges sealed with sandbags, bricks, or boards to prevent ARTOs from falling into holes or trenches. All holes and trenches within potential ARTO habitat would be inspected each morning by the project biologist.</p> <p>BR-20 The project biologist would be present at the end of the day to ensure that any excavations are properly covered to prevent ARTOs from entering any open pits and to check the integrity of the ARTO fence.</p> <p>BR-21 The project biologist would contact MCAS Environmental regarding any ARTO sightings. Any incidental excavation, capture and relocation, injury, or death of ARTOs in association with project activities would be reported immediately to MCAS Environmental, who would notify the USFWS.</p> <p>BR-22 All work areas would be kept as clean as possible to avoid attracting ARTO predators or insects (prey). All food-related trash would be placed in sealed bins or removed from the site regularly.</p> <p>BR-23 If required for dust control, water truck spraying would be conducted to the minimum extent necessary and in a manner that does not attract ARTOs into the project area. In particular, over-spraying would be avoided and spraying near occupied habitat would not occur.</p>	No measures identified.
<i>Cultural Resources</i>		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> No cultural resources exist within the MCAS Camp Pendleton project area, therefore, measures listed below are only applicable to the MCB Camp Pendleton alternative mitigation sites. All cultural resources within the MCB Camp Pendleton alternative mitigation sites would be avoided. Conditions of the MCB Camp Pendleton Programmatic Agreement (PA) would be implemented. There would be no adverse effect to historic properties.</p>	<p><u>No Impact</u> There would be no change in existing conditions.</p>
<i>Conservation Measures</i>	<p>CR-1 MCB Camp Pendleton must ensure that proposed activities and disturbances avoid direct and indirect effects to historic properties. If archaeological sites are eligible for the National Register of Historic Places (NRHP) under 36 CFR 60.4(d), then the site boundary must be demarcated and excluded from the proposed undertaking. All other eligible historic properties for listing in the NRHP under other criteria, must be physically demarcated and avoided during the implementation of an undertaking.</p> <p>CR-2 Buffer zones may be established to ensure added protection where setting contributes to the property's eligibility under 36 CFR 60.4. The size of the buffer zone would be determined by the MCB Camp Pendleton archaeologist on a case-by-case basis.</p> <p>CR-3 Monitoring of eligible historic properties on MCB Camp Pendleton would occur to enhance the effectiveness of the protection measures described above.</p>	No measures identified.

Table ES-1. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
Public Health and Safety		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> The Proposed Action would allow MCAS Camp Pendleton to conform to Department of Defense (DoD) and Department of the Navy (DoN) airfield safety and planning regulations, thereby reducing the risk to flight safety posed by the height of the current riparian vegetation at the southwest end of the runway.</p>	<p><u>Adverse Impact</u> There would be no change in existing conditions; vegetation would continue to penetrate the Primary Surface, Clear Zones, and Transition Zones southwest of the MCAS Camp Pendleton runway. Aircraft operations and personnel would continue to be put at risk.</p>
<i>Conservation Measures</i>	<p>PHS-1 The vegetation management/restoration contractor(s) would be required to prepare an Accident Prevention Plan/Health and Safety Plan. This plan would include designs for standard safety measures to be implemented during vegetation management/restoration activities. The health and safety plan would be prepared in accordance with applicable federal, state, and local laws and regulations.</p> <p>PHS-2 Any hazardous materials or waste generated would be required to be manifested through the MCAS Camp Pendleton Hazardous Waste Manager for review and inspection. In the unlikely event that hazardous materials or wastes are brought on to the project area at MCAS Camp Pendleton, the contractor(s) would provide a list of proposed materials to MCAS Camp Pendleton for review and approval on the Authorized Use List. Hazardous materials and waste must be removed from MCAS Camp Pendleton and MCB Camp Pendleton within 60 days of initial generation.</p>	<p>No measures identified.</p>

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Acronyms and Abbreviations

%	percent	MCB	Marine Corps Base
		MCO	Marine Corps Order
ac	acre(s)	MFS	mulefat scrub
AOA	Airfield Obstruction Analysis		
APE	area of potential effect	NAAQS	National Ambient Air Quality Standards
ARTO	arroyo Toad	NAVFAC	Naval Facilities Engineering Command
BMP	best management practice	NEPA	National Environmental Policy Act
		NHPA	National Historic Preservation Act
CAA	Clean Air Act	NNGB	Non-native Grassland: Broadleaf-dominated
CAAQS	California Ambient Air Quality Standards	NOAA	National Oceanic and Atmospheric Administration
CAGN	California gnatcatcher		
CARB	California Air Resources Board	NPS	National Park Service
CEQ	Council on Environmental Quality	NRHP	National Register of Historic Places
CFR	Code of Federal Regulations	NWI	National Wetlands Inventory
CM	conservation measure		
CWA	Clean Water Act	O ₃	ozone
DoD	Department of Defense	PA	Programmatic Agreement
		PM _{2.5}	particulate matter less than or equal to 2.5
EA	Environmental Assessment	PM ₁₀	particulate matter less than or equal to 10
EIS	Environmental Impact Statement		
EO	Executive Order	ROD	Record of Decision
ESA	Endangered Species Act	ROI	region of influence
		RONA	Record of Non-Applicability
FONSI	Finding of No Significant Impact		
ft	foot/feet	SDAB	San Diego Air Basin
		SHPO	State Historic Preservation Office
GHG	greenhouse gases	SMR	Santa Margarita River
GIS	geographic information system	SWFL	southwestern willow flycatcher
		SWPPP	Stormwater Pollution Prevention Plan
ha	hectare(s)	SWRCB	State Water Resources Control Board
HMP	Habitat Mitigation Plan	SWRF	southern arroyo willow riparian forest
		SWS	southern willow scrub
INRMP	Integrated Natural Resources Management Plan	UFC	Unified Facilities Criteria
		U.S.	United States
LBVI	least Bell's vireo	USACE	U.S. Army Corps of Engineers
LiDAR	Light Detection and Ranging	USC	U.S. Code
		USEPA	U.S. Environmental Protection Agency
m	meter(s)	USFWS	U.S. Fish and Wildlife Service
MBTA	Migratory Bird Treaty Act	USMC	U.S. Marine Corps
MCAS	Marine Corps Air Station		

CHAPTER 1

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States (U.S.) Department of the Navy (DoN) and the U.S. Marine Corps (USMC) prepared this Environmental Assessment (EA) to analyze the potential environmental impacts resulting from the proposed maintenance and management of vegetation southwest of the runway at Marine Corps Air Station (MCAS) Camp Pendleton to conform to the Primary Surface, Clear Zone, and Transition Zone safety requirements, as well as potential habitat mitigation actions that may occur on Marine Corps Base (MCB) Camp Pendleton. The DoN and USMC have prepared this EA in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] §§ 4321-4370h), as implemented by the Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Marine Corps Order (MCO) 5090.2, dated 11 June 2018, *Environmental Compliance and Protection Program*, that establishes USMC procedures for implementing NEPA.

1.2 PROJECT LOCATION

The Proposed Action would occur at MCAS Camp Pendleton. Resultant impacts from implementation of the proposed action on MCAS Camp Pendleton would either be mitigated at select sites identified on MCB Camp Pendleton (Figure 1-1), or at an off-Base site to be identified at a later date. MCAS Camp Pendleton is a 488-acre (ac) (197-hectare [ha]) full-service air installation, separate from MCB Camp Pendleton, yet fully situated within the MCB Camp Pendleton boundaries. It is bordered on the north to southwest by the Santa Margarita River (SMR); on the south and southeast by Vandegrift Blvd; and on the east and northeast by Basilone Road. In 2000, a 14,500-foot (ft) (4,420-meter [m]) levee and a 2,300-ft (701-m) floodwall were constructed along MCAS Camp Pendleton's southwestern, western, and northwestern border for flood protection against the adjacent SMR. The levee is a composite structure consisting of soil-cement, geogrid-reinforced soil, and reinforced concrete with maximum heights ranging from approximately 10 to 20 ft (3 to 6 m) above the ground elevation.

MCB Camp Pendleton comprises approximately 125,000 ac (50,600 ha), is located within San Diego County, and is bordered by the city of San Clemente and Orange County to the northwest, the city of Oceanside to the south, the community of Fallbrook to the east, and the Pacific Ocean to the west.

1.3 BACKGROUND

MCAS Camp Pendleton is a full-service air installation that handles both rotary- and fixed-wing aircraft. The mission of MCAS Camp Pendleton is to maintain and operate the air station facilities and property, and to provide support and services that enable I Marine Expeditionary Force, tenants, and visiting units to maintain and enhance their mission capability and combat readiness.

DoD and DoN airfield safety regulations specify the maximum safe height of objects, including vegetation, that surround the airfield. In November 2007, MCAS Camp Pendleton Air Traffic Control personnel, along with Federal Aviation Administration officials, conducted a pre-inspection of the areas surrounding the runway and identified trees and other vegetation surrounding the southwestern overrun as obstructions to flight operations. During a follow-on courtesy inspection, Naval Safety Center personnel also identified the same trees and vegetation as obstacles.

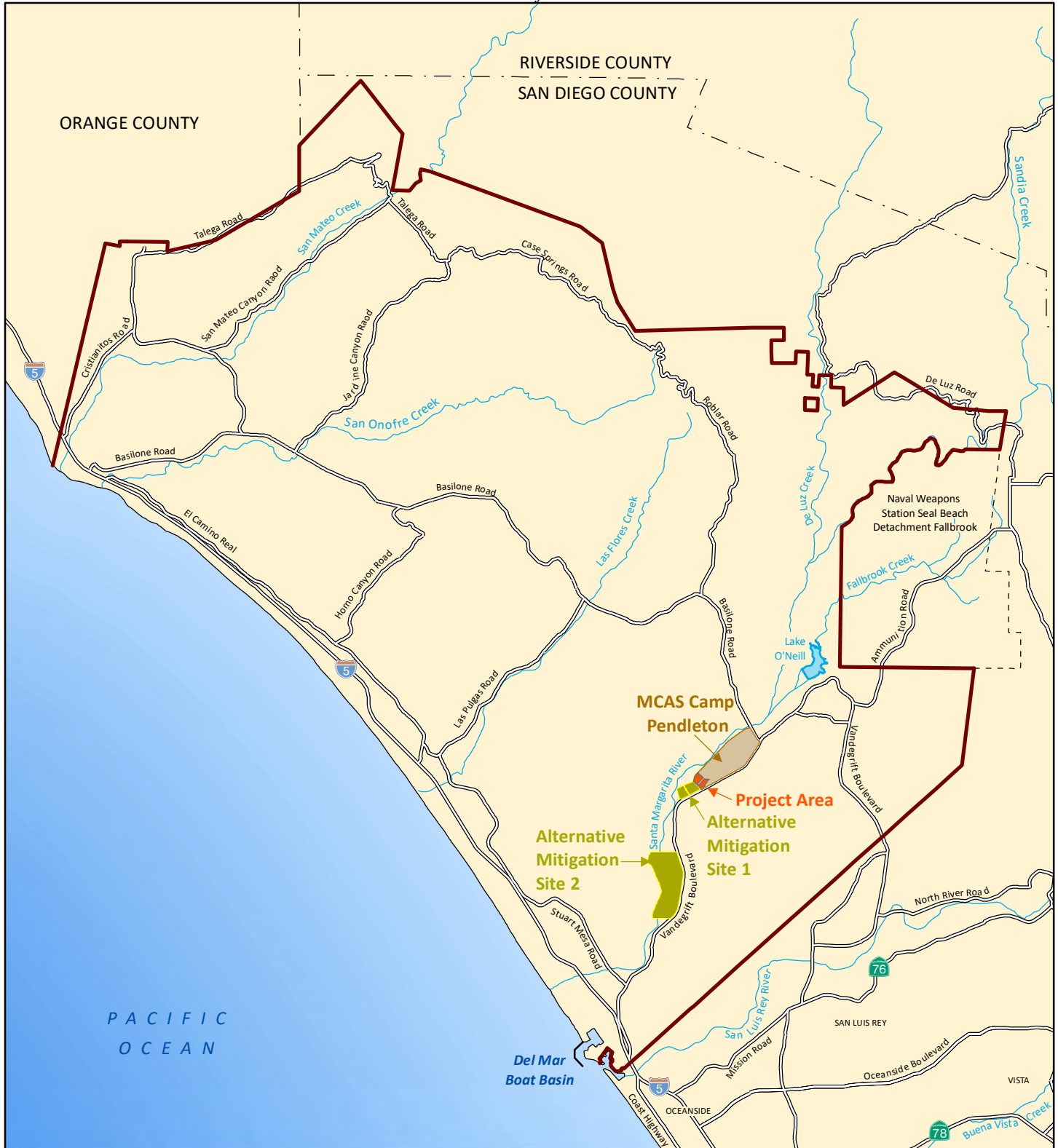
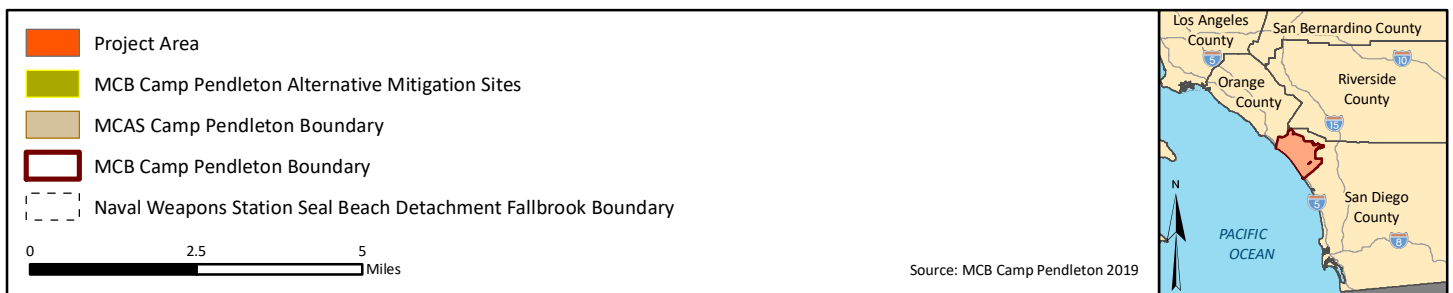


Figure 1-1. MCAS and MCB Camp Pendleton Location Map



Source: MCB Camp Pendleton 2019

Based on these findings, a Light Detection and Ranging (LiDAR) survey was conducted in May 2009 (DoN 2009) and an Airfield Obstruction Analysis (AOA) Report (MCAS Camp Pendleton and Naval Facilities Engineering Command [NAVFAC] 2011) was prepared, identifying additional obstacles within and around MCAS Camp Pendleton as well as potential courses of action to conform to DoD and DoN airfield safety regulations. In December 2013, an Aviation Facilities Safety Survey reconfirmed the obstructions identified in the AOA Report (Naval Safety Center 2013).

MCAS Camp Pendleton has been an independent installation within greater MCB Camp Pendleton for over 75 years and plays an important role in Marine Aviation - which is crucial to national security. The ultimate goal of Marine Aviation is to attain the highest possible combat readiness to support Expeditionary Maneuver Warfare while preserving and conserving the Marines and their equipment. Embedded within combat readiness is the requirement that Marine Aviation units maintain the ability to rapidly, effectively, and efficiently deploy a combat-capable aircrew and aircraft on short notice, and maintain the ability to quickly and effectively plan for crises and/or contingency operations. Air Operations at MCAS Camp Pendleton enable the Marines to attain and maintain this capability.

MCAS Camp Pendleton, in coordination with the MCB Camp Pendleton, has identified two sites along the floodplain of the SMR and made them available for MCAS Camp Pendleton to use for mitigation, as needed. This EA includes an analysis of using one or both of these sites to compensate for potential MCAS habitat impacts. If MCAS, in coordination with the USFWS, chooses to mitigate potential MCAS impacts on MCB Camp Pendleton land, MCAS Camp Pendleton would be responsible for the oversight and management of the mitigation action and for meeting any required success standards. Though mitigation is more likely to occur at a location off-Base (see page 1-8, line 19-26), and thus lessen the burden and recurring cost of on-Base mitigation oversight, this EA discusses the alternative to use mitigation on MCB Camp Pendleton in Section 2.2.3.

1.3.1 Aviation Safety Regulations

DoD and DoN airfield safety and planning guidance is provided in three publications that address obstacles to flight and the specific criteria for determining obstructions. The publications consider fixed and mobile objects, which include natural growth, terrain, and permanent or temporary construction, including construction equipment and materials. The three publications are:

- NAVFAC P-971, *Airfield and Heliport Planning Criteria* (U.S. Air Force et al. 1981),
- NAVFAC P-80.3, *Facility Planning Factor Criteria for Navy & Marine Corps Shore Installations, Appendix E, Airfield Safety Clearances* (NAVFAC 1982), and
- UFC 3-260-01, *Airfield and Heliport Planning and Design* (DoD 2008).

Different criteria are used to determine obstructions in relation to an object's proximity to a federal airway, an airfield, approach and departure areas around an airport, or takeoff and landing areas of an airport and its "imaginary surfaces." Imaginary surfaces define, for example, the maximum height to which vegetation can grow while still allowing for safe air navigation.

Imaginary surfaces considered in this EA are limited to the Primary Surface, the Clear Zones (Type I and Type III), and the Transition Zones (including the 7:1 Transitional Surface and the 40:1 Approach-Departure Clearance Surface). Safety planning criteria related to these imaginary surfaces are discussed in detail in Section 1.3.2 and are generally described as follows:

- The Primary Surface generally refers to the runway and immediate surrounding area, which must be clear of fixed and mobile objects or any feature that would constitute a possible hazard for a moving aircraft.
- The Clear Zone Type I must be free of any aboveground objects.
- Obstacles within the Clear Zone Type III must remain at or below the Approach-Departure Clearance Surface.
- The Transitional Surface is an inclined plane parallel to the runway beginning at the edge of the Primary Surface.
- The Approach-Departure Clearance Surface is an inclined plane and begins 200 ft from the end of the runway.

Figure 1-2 provides the location of the Primary Surface, Clear Zones, and the Transition Zones within the vicinity of MCAS Camp Pendleton.

1.3.2 Safety Planning Criteria

Three DoD and DoN airfield safety and planning guidance publications (U.S. Air Force et al. 1981, NAVFAC 1982, DoD 2008) have been established to ensure safe, navigable airspace, especially on and around airfields. Three types of safety planning criteria are considered in this EA: the Primary Surface, the Clear Zones, and the Transition Zones (Figure 1-2).

1.3.2.1 Primary Surface

The MCAS Camp Pendleton airfield is designated as a Class A airfield. The Primary Surface for Class A airfields is described as follows:

- It is centered on the runway longitudinally; it is 1,000 ft (305 m) wide, with 500 ft (152 m) on either side of the runway centerline.
- It extends 200 ft (61 m) beyond each end of the runway; these 200-ft (61-m) areas overlap a portion of the runway Clear Zone Type I.
- The Primary Surface must be clear of fixed and mobile objects or any feature that would constitute a possible hazard for a moving aircraft, including manmade and natural features such as buildings, trees, rocks, or terrain irregularities. Exceptions include approach lighting systems, visual approach slope indicator systems, runway distance markers, taxiway guidance and holding signs, arming and de-arming pads, navigational aids, and meteorological equipment.
- The northeast and southwest ends of the Primary Surface serve as the beginnings of the northeast and southwest Approach-Departure Clearance Surface, respectively.
- MCAS Camp Pendleton's Primary Surface is 6,400 ft (1,951 m) long.

1.3.2.2 Clear Zones

The Clear Zone for a Class A runway is composed of two separate sections, Clear Zone Type I and Type III. In total, the Clear Zone is 1,000 ft (305 m) wide by 3,000 ft (914 m) long and starts at each end of the runway. Clear zones, which are areas immediately beyond the ends of the runways and along primary flight paths, have the greatest potential for occurrence of aircraft accidents and should remain undeveloped. The characteristics of the Clear Zone Type I are described below. Clear Zone Type III is not discussed further as it is not a part of the Proposed Action.

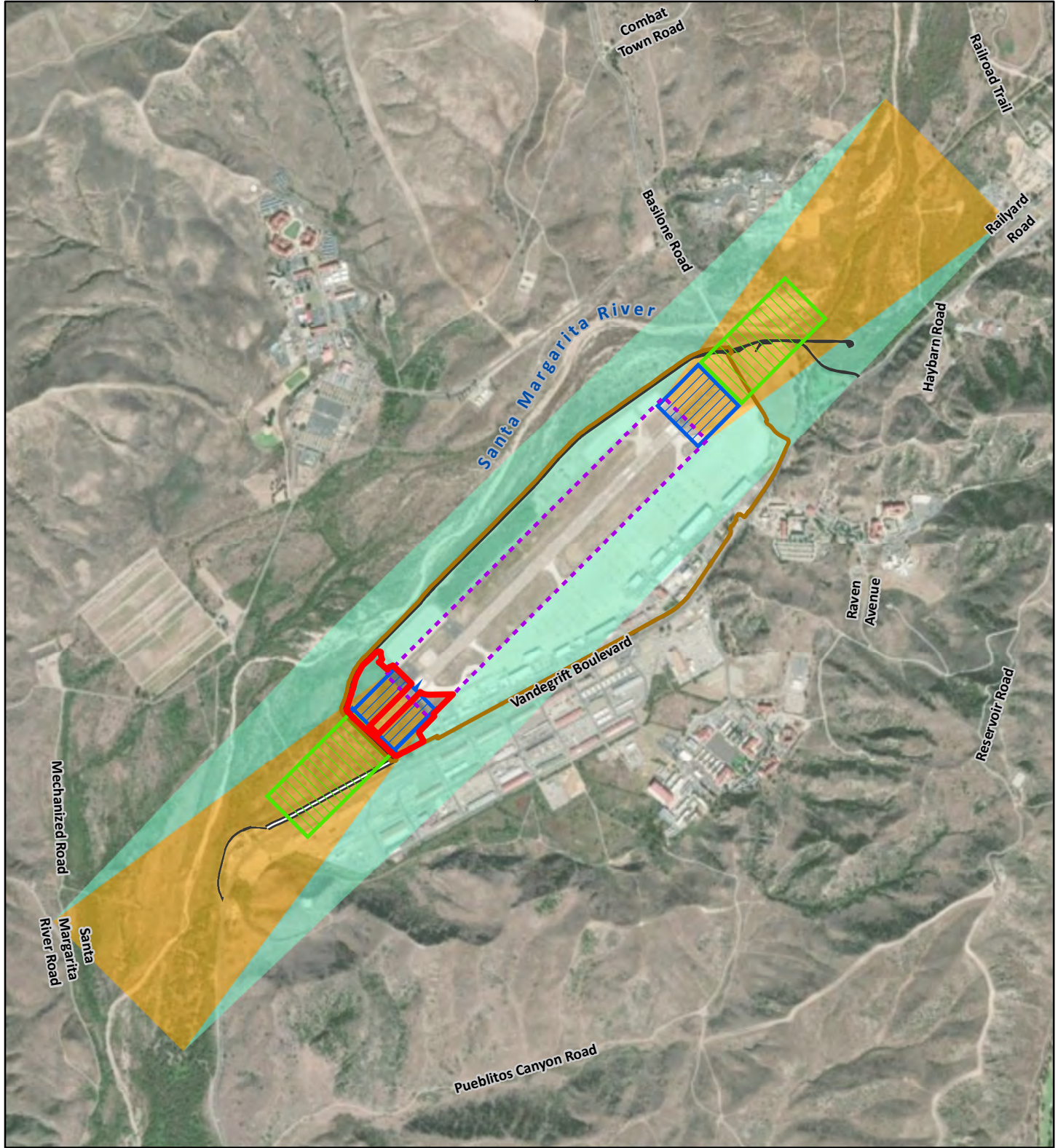
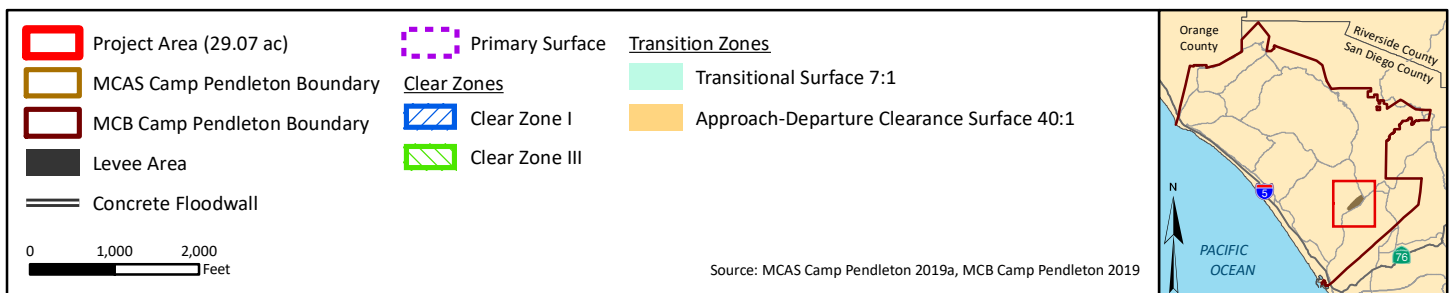


Figure 1-2. Primary Surface, Clear Zones, and Transition Zones



Clear Zone Type I

- The Clear Zone Type I is 1,000 ft (305 m) wide by 1,000 ft (305 m) long, abutting the end of the runway.
- This area should be cleared and graded with no objects above the ground with the exception of airfield lighting. It provides a safety buffer area for an aircraft that might skid off the end of the runway during landing rollout or an aborted takeoff.
- The first 200 ft (61 m) of this imaginary surface overlaps the last 200 ft (61 m) of the Primary Surface.
- The runway overrun is situated in this area.
- In the case of MCAS Camp Pendleton, the Clear Zone Type I is located entirely within the boundary of MCAS Camp Pendleton (refer to Figure 1-2).

1.3.2.3 Transition Zones

For purposes of this EA, “Transition Zones” refer to both a 7:1 Transitional Surface and a 40:1 Approach-Departure Clearance Surface, each of which is described in the sections below.

Transitional Surface (7:1)

The Transitional Surface is an inclined plane on either side of the runway that abuts the Primary Surface and Approach-Departure Clearance Surface. Its characteristics are described below.

- The slope of the Transitional Surface is 7 (horizontal) to 1 (vertical).
- MCAS Camp Pendleton’s Transitional Surface overlies both MCAS Camp Pendleton and MCB Camp Pendleton (Figure 1-2).
- For purposes of this EA, the Transitional Surface is limited to that which is inside the levee as shown on Figure 1-3.

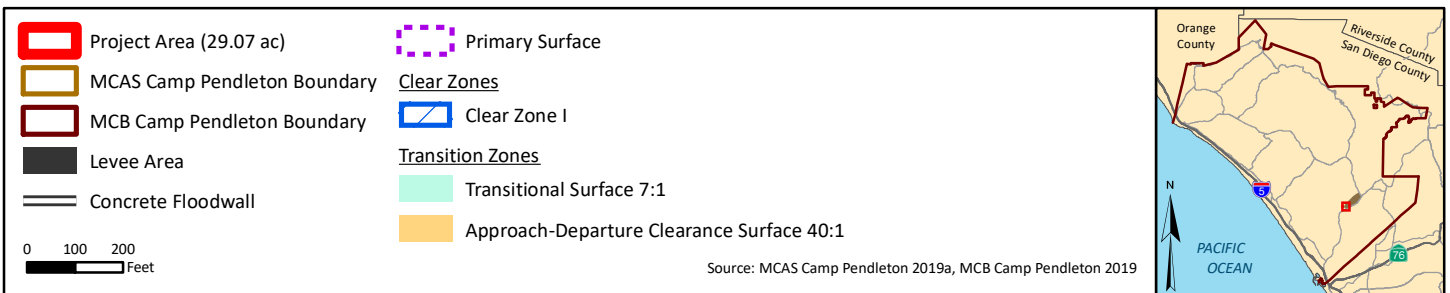
Approach-Departure Clearance Surface (40:1)

The full Approach-Departure Clearance Surface for a Class A runway starts at both ends of the Primary Surface and is an inclined plane for the first 20,000 ft (6,096 m), at which point it changes to a horizontal plane and continues for another 30,000 ft (9,144 m). Its characteristics are described below.

- The Approach-Departure Clearance Surface extends horizontally from the end of the Primary Surface out to a distance of 50,000 ft (15,240 m).
- The slope of this surface is 40 (horizontal) to 1 (vertical) until it reaches an elevation of 500 ft (152 m) above the airfield elevation, at which point it continues horizontally until it reaches a distance of 50,000 ft (15,240 m). In the case of MCAS Camp Pendleton, whose field elevation is 78 ft (24 m) above mean sea level, the Approach-Departure Clearance Surface reaches a maximum of 578 ft (176 m) above mean sea level.
- Due to its extensive length, the Approach-Departure Clearance Surface overlays MCAS Camp Pendleton, MCB Camp Pendleton, and the Pacific Ocean to the southwest.
- For purposes of this EA, the Approach-Departure Clearance Surface is limited to that which is inside the levee as shown on Figure 1-3.



Figure 1-3. Imaginary Surfaces in the Project Area



1.4 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to ensure the safety of MCAS Camp Pendleton air operations within the MCAS Camp Pendleton Primary Surface, Clear Zones, and Transition Zones by managing and maintaining the vegetation southwest of the MCAS Camp Pendleton runway.

The Proposed Action would allow MCAS Camp Pendleton to conform to DoD and DoN airfield safety and planning regulations (including, NAVFAC P-971, Appendix E of NAVFAC P-80.3, and Unified Facilities Criteria [UFC] 3-260-01). The vegetation southwest of the MCAS Camp Pendleton runway currently exceeds the height limits specified in the airfield safety and planning regulations. Although the MCAS Camp Pendleton runway was constructed before issuance of the airfield safety and planning regulations, the regulations apply because construction of the runway overruns occurred after the regulations were issued and thereby triggered their applicability.

Naval Air Systems Command issued a *Modification to Temporary Airfield Safety Waiver (CPN-7)* to MCAS Camp Pendleton (Naval Air Systems Command 2015), pending permanent resolution. The temporary waiver allows for MCAS Camp Pendleton to continue operations while out of conformance with airfield obstruction safety regulations southwest of the runway. Conformance with the airfield safety and planning regulations is needed for MCAS Camp Pendleton to accomplish its mission in a safe manner, free of obstacles that would otherwise increase the risk of an aircraft accident.

In accordance with ESA Section 7 requirements and the Riparian Ecosystem Conservation Plan and Riparian/Estuarine Biological Opinion (BO) (hereafter referred to as the Riparian BO) (USFWS 1995a), impacts to riparian habitat on MCAS and MCB Camp Pendleton require compensatory mitigation. Given site limitations, there is no area that could be used as potential mitigation habitat on MCAS Camp Pendleton. Therefore, MCAS Camp Pendleton anticipates compensating for impacts to riparian habitat by purchasing credits at an off-Station USFWS-approved mitigation bank. However, if this current plan proves not to be viable, impacts to riparian habitat would be mitigated for via habitat restoration/creation on lands that are available at MCB Camp Pendleton.

1.5 REGULATORY SETTING

This EA will discuss in detail, the alternative or alternatives that could reasonably meet the Purpose and Need for the Proposed Action. This EA will briefly describe the No-Action Alternative and the Alternatives Considered and Not Carried Forward. The following will also be discussed in detail in this EA: 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 consideration for identification and analysis of alternatives is the avoidance or minimization of environmental impacts. The decision for the MCAS Camp Pendleton Commanding Officer relates to the alternative that best meets the Purpose and Need for the Proposed Action while avoiding or minimizing adverse environmental impacts.

This EA has been prepared in accordance with applicable federal regulations, instructions, and public law including, but not limited to:

- NEPA of 1969 [42 USC §§ 4321-4370h]
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508)
- DoN procedures for implementing NEPA (32 CFR Part 775)
- MCO 5090.2, dated 11 June 2018, *Environmental Compliance and Protection Program*

This EA has also been prepared to address regulatory requirements of the following statutes, Executive Orders (EOs), and agreements:

- National Historic Preservation Act (NHPA), 54 USC 300101 *et seq.*
- Archeological Resource Protection Act, 16 USC §§ 470aa-470mm
- Clean Water Act (CWA), 33 USC §§ 1251-1387
- Clean Air Act (CAA), as amended, 42 USC §§ 7401-7671q, including 1990 General Conformity Rule
- Endangered Species Act (ESA), 16 USC §§ 1531-1544
- Migratory Bird Treaty Act (MBTA), 16 USC §§ 703-712
- Resource Conservation and Recovery Act, 42 USC §§ 6901-6992k
- Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC §§ 9601-9675
- Coastal Zone Management Act, 16 USC § 1451 *et seq.* and 15 CFR § 930
- EO 13186 – *Responsibilities of Federal Agencies to Protect Migratory Birds*
- EO 11988 – *Floodplain Management*
- EO 11990 – *Protection of Wetlands*
- EO 12898 – *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*
- EO 13045 – *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 13186 – *Migratory Bird Conservation*
- EO 13514 – *Federal Leadership in Environmental, Energy, and Economic Performance*
- Memorandum of Understanding Between the Department of Defense (DoD) and the U.S. Fish and Wildlife Service (USFWS) to Promote the Conservation of Migratory Birds

Table 1-1 presents the anticipated agency permits and consultation potentially needed for the Proposed Action. Appendix A contains relevant agency correspondence.

Table 1-1. Anticipated Permits and Consultations for the Proposed Action

Agency	Permit or Approval	Current Status
USFWS	Section 7 of the ESA	The USMC is conducting formal ESA Section 7 consultation with the USFWS and has submitted a Biological Assessment of the Proposed Action. The resulting BO will be provided in Appendix A.
SWRCB	Construction General Permit for Stormwater Discharges	The USMC will obtain a Construction General Permit for Stormwater Discharges as the Proposed Action would result in more than 1 ac (0.4 ha) of disturbance.

Legend: BO = Biological Opinion; ESA = Endangered Species Act; SWRCB = State Water Resources Control Board; USFWS = U.S. Fish and Wildlife Service

1.6 PUBLIC PARTICIPATION

Refer to Appendix B, *Public Participation* for public participation documentation.

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

CEQ Regulations for Implementing the Procedural Provisions of NEPA establish a number of policies for federal agencies, including “using the NEPA process to identify and assess the reasonable alternatives to the Proposed Action that will avoid or minimize adverse effects of these actions on the quality of the human environment” (40 CFR 1500.2 [e]). This EA carries forward for detailed analysis alternatives that could meet the purpose of and need for the project as defined in Section 1.4, *Purpose of and Need for the Proposed Action*.

Two alternatives are evaluated in this EA: the No-Action Alternative and the Proposed Action. The Proposed Action would allow for the management and maintenance of vegetation at the southwest end of the MCAS Camp Pendleton runway to conform to Clear Zone, Transition Zone, and Primary Surface safety requirements, and, if needed, the implementation of riparian habitat mitigation at one or both alternative mitigation sites on MCB Camp Pendleton. Under the No-Action Alternative, vegetation would not be managed and maintained southwest of the MCAS Camp Pendleton runway. As such, the existing vegetation would continue to penetrate the Primary Surface, Clear Zone, and Transition Zone, and MCAS Camp Pendleton would continue to be out of conformance with safety regulations.

Section 2.1 describes the No-Action Alternative and Section 2.2 describes the Proposed Action. Other alternatives considered but eliminated from detailed analysis is described in Section 2.3.

2.1 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the DoN and USMC would not implement vegetation management and maintenance actions southwest of the MCAS Camp Pendleton runway. As such, the existing vegetation would continue to penetrate the Primary Surface, Clear Zones, and Transition Zones, and MCAS Camp Pendleton would continue to be out of conformance with safety regulations (refer to Section 1.3.1).

The No-Action Alternative would not meet the purpose of or need for the Proposed Action. However, as required under CEQ regulations (40 CFR § 1502.14[d]), it is carried forward for analysis as a baseline from which to compare the impacts of the Proposed Action. In this EA, the No-Action Alternative represents the baseline conditions described in Chapter 3.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would manage and maintain vegetation southwest of the MCAS Camp Pendleton runway to conform to the Clear Zone, Transition Zone, and Primary Surface safety requirements outlined in Section 1.3.2 (Figure 1-3), as well as assess potential habitat mitigation actions that may occur on MCB Camp Pendleton. The Proposed Action attempts to minimize both the impacts from vegetation management and maintenance as well as the long-term maintenance requirements by (1) transitioning incompatible vegetation to a more compatible type, (2) regularly monitoring and maintaining vegetation height within the project area, and (3) implementing conservation measures (CMs) (see Table 3.0-3). Vegetation management and maintenance would begin in 2020 and continue indefinitely.

For the purposes of this EA, the “project area” is defined as the land on MCAS Camp Pendleton that would be managed and maintained under the Proposed Action to conform to the Clear Zone, Transition Zone, and Primary Surface safety requirements (Figure 1-3). The two alternative MCB Camp Pendleton mitigation sites (Figures 2-1 and 2-2) identified in this EA, will be analyzed in detail in a separate Habitat Mitigation

Plan (HMP). This would allow MCAS the flexibility to use these sites at its convenience or as its discretion in the near future, in the unlikely event that an off-Base mitigation site does not materialize, and/or for another project.

The Proposed Action includes the initial transition of 25.29 ac (10.23 ha) of riparian habitat within the project area (Figure 1-3) to grassland habitat, and regular monitoring and maintenance that would occur indefinitely to ensure that the vegetation in the southwest portion of MCAS Camp Pendleton conforms to the Clear Zone, Transition Zone, and Primary Surface safety requirements.

While MCAS Camp Pendleton anticipates compensating for impacts to riparian habitat at an off-Station USFWS-approved mitigation bank, if this current plan proves not to be viable, the Proposed Action also includes an analysis of compensating for riparian habitat impacts via habitat restoration/creation at one or both of the two identified alternative mitigation sites on MCB Camp Pendleton. The MCB Camp Pendleton alternative mitigation sites and respective mitigation actions are discussed in Section 2.2.3. An analysis of impacts associated with the mitigation actions are presented in the *Environmental Consequences* sections of Chapter 3.

2.2.1 Transition from Riparian to Grassland Habitat

All riparian vegetation (25.29 ac [10.23 ha]) within the project area would be cleared, graded, and re-planted with a seed mix of low-growing native grasses and forbs. To perform the initial clear and grade, a field crew of approximately six people would use chainsaws and pole saws as needed to remove top vegetation. Riparian trees would be removed by grinding the stumps to the ground. Ground stumps would also be treated with herbicide to prevent regrowth. A wood chipper would be used to make wood debris more manageable, and trucks would be used to remove all debris. A small bulldozer, such as a Caterpillar® D-5, would be used as needed to load trucks or grade the resulting surface to prevent water from ponding. During grading, topsoil would be stockpiled for on-site redistribution once riparian vegetation clearance is complete.

Table 2-1 provides an example of native grass and forb species that generally grow less than 1 ft in height, although any low-growing native grass/forb species could be utilized. Seed would be applied by hydroseeding or hand broadcasting. Once applied, the seed would be raked to conform to the existing ground surface and then covered with the stockpiled topsoil. Supplemental water may be required during the first few months of grassland establishment to promote growth and distribution.

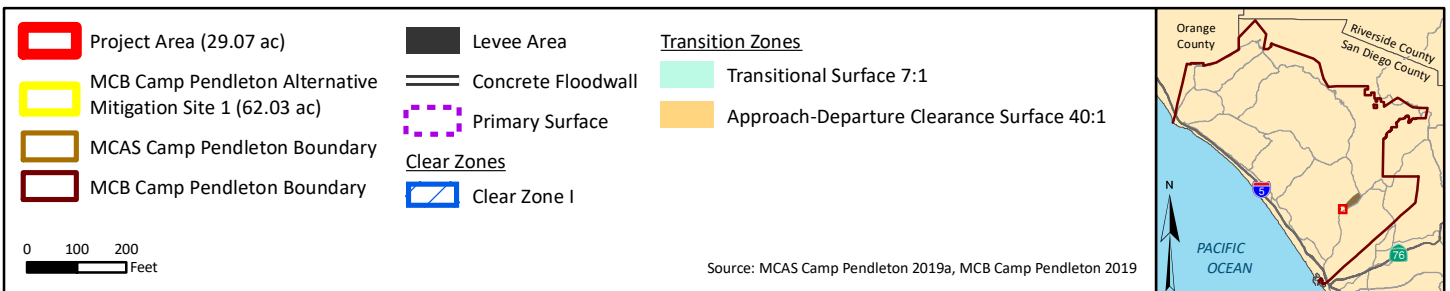
Portions of the project area (3.50 ac [1.42 ha]) consist of previously disturbed and non-native grassland habitats, and have historically been mowed. These areas would not require clearing and re-planting, but would be monitored and maintained under the Proposed Action. An additional 0.28 ac (0.11 ha) of disturbed habitat in the project area is devoid of vegetation, and would be maintained as such under the Proposed Action.

Table 2-1. Example Seed Mix – Low-Growing Grasses and Forbs

Scientific Name	Common Name	Pounds per Acre
<i>Castilleja exserta</i>	Purple owl's clover	2
<i>Deschampsia danthonioides</i>	Annual hairgrass	5
<i>Festuca microstachys</i>	Small fescue	12
<i>Festuca octoflora</i>	Six weeks grass	10
<i>Lasthenia californica</i>	California goldfields	5
<i>Trifolium ciliolatum</i>	Foothill clover	2
TOTAL		36



Figure 2-1. MCB Camp Pendleton Alternative Mitigation Site 1



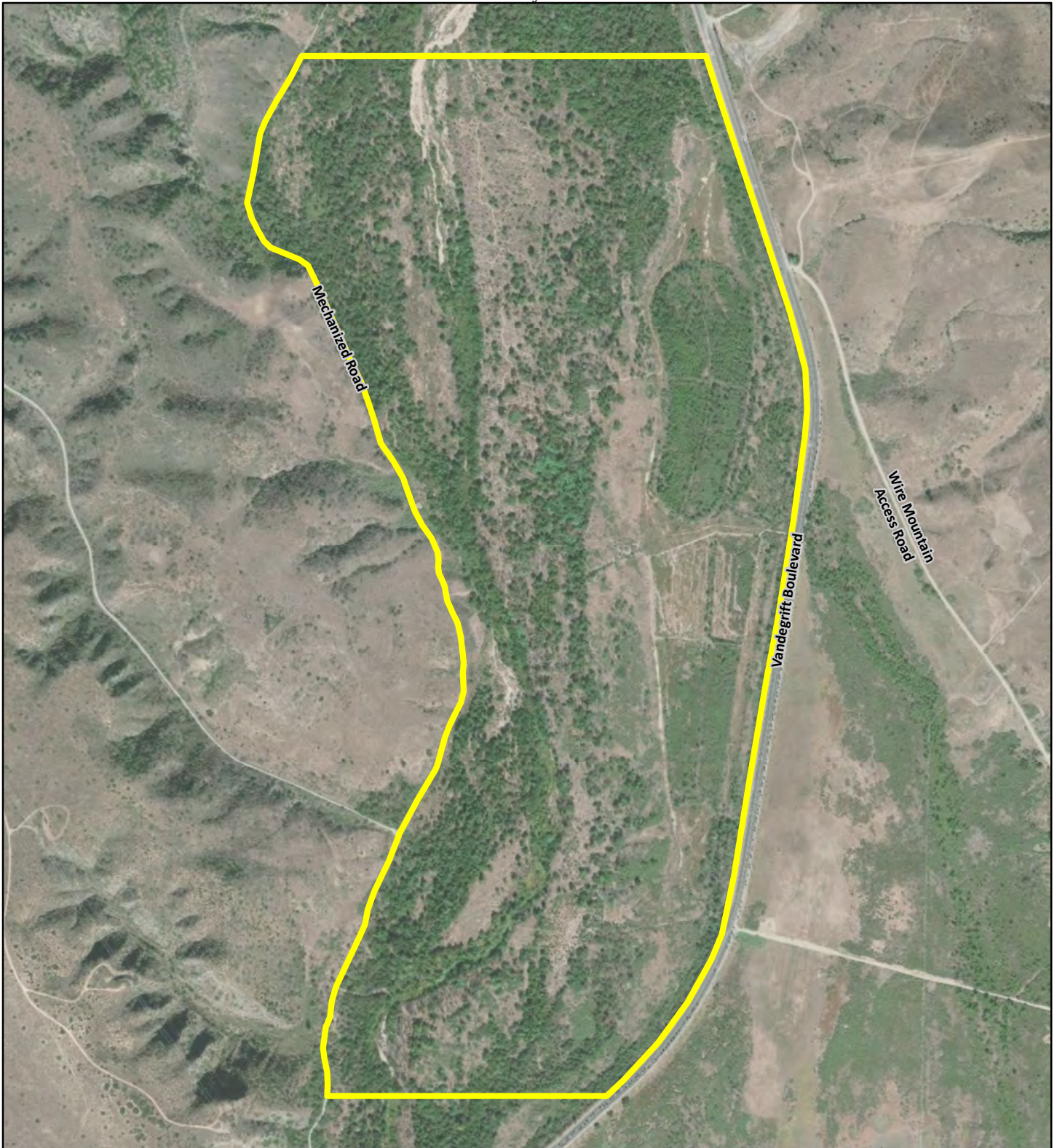
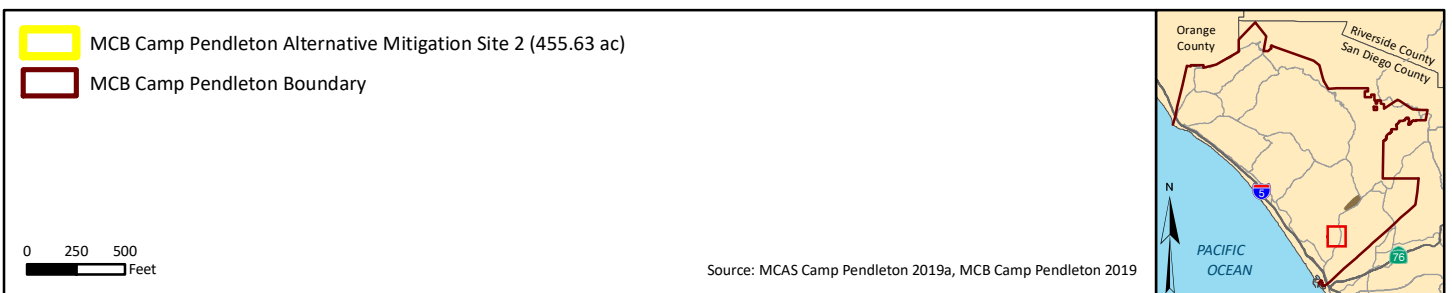


Figure 2-2. MCB Camp Pendleton Alternative Mitigation Site 2



2.2.2 Monitoring and Maintenance

Vegetation management and maintenance is performed on MCAS Camp Pendleton in accordance with an Exotic Species Control and Vegetation Maintenance Plan (NAVFAC Southwest 2016). Regular monitoring and maintenance of vegetation under the Proposed Action would be conducted indefinitely in accordance with the existing plan. Access to the work areas would be gained either on foot or would be provided by existing roads and infrastructure. No roads (permanent or temporary) would be created.

Habitat that is transitioned to grassland within the project area would be monitored quarterly by MCAS Camp Pendleton Natural Resources personnel for habitat integrity (to ensure no bare dirt is exposed) and to identify any potential vegetation that is growing above the general height of the low-growing grasses and forbs (e.g., seedling riparian shrubs and trees or other non-compatible species that become reestablished).

All maintenance work would be completed between 1 September and 14 February, outside the riparian bird breeding season (15 February through 31 August), to avoid impacts to breeding bird species. Any areas of exposed dirt or areas that are ponding water would be regraded and/or reseeded. Any non-compatible plant establishment would be managed by mowing or removal. Maintenance work would continue indefinitely.

2.2.3 Mitigation

Under the Proposed Action, impacts to 25.29 ac (10.23 ha) of riparian habitat occupied by federally listed species would be mitigated, consistent with the Riparian BO (USFWS 1995a), and consistent with results from ESA Section 7 consultation with the USFWS, through a combination of Riparian BO ledger deductions and compensatory mitigation at a ratio of 1:1. Compensation for impacts to riparian habitat is expected to occur through the purchase of mitigation credits at an off-Station/Base USFWS-approved mitigation bank. However, if purchasing mitigation credits is not a viable option, mitigation would occur through habitat restoration/creation on MCB Camp Pendleton.

Two alternative mitigation sites have been identified on MCB Camp Pendleton where the USMC could mitigate for the 25.29 ac (10.23 ha) of impacts to riparian habitat associated with the Proposed Action. These sites, Alternative Mitigation Site 1 (61.13 ac [24.74 ha]) (Figure 2-1) and Alternative Mitigation Site 2 (455.63 ac [184.39 ha]) (Figure 2-2), are both located on the floodplain of the SMR. Although the sites are on lands owned and managed by MCB Camp Pendleton, if riparian habitat mitigation for the Proposed Action was to occur at either site or both sites, MCAS Camp Pendleton would oversee and be responsible for the mitigation.

If needed, mitigation at the two alternative sites would consist of non-native plant control and removal, planting of native riparian shrubs and trees, and/or overall maintenance of the mitigation area(s) to ensure that habitat mitigation is successful. The mitigation would be done at a 1:1 ratio. Any mitigation would be done in accordance with an HMP that would be prepared by MCAS Camp Pendleton and approved by the USFWS prior to implementation. The HMP would detail the mitigation methods, conservations measures, success standards, and remedial measures required for the 25.29 acres of riparian habitat restoration/creation.

The MCB Camp Pendleton alternative mitigation sites, and any riparian habitat mitigation that would occur within the sites, in support of the Proposed Action, are conceptually analyzed in this EA. Existing environmental conditions in the MCB Camp Pendleton alternative mitigation sites are discussed in Chapter 3, as well as measures that would be undertaken to ensure that any mitigation in the sites would only impart less than significant or beneficial environmental impacts to affected resource areas.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR DETAILED ANALYSIS

The alternative below was evaluated as a consideration for detailed analysis, but ultimately was eliminated from further consideration due to a general lack of feasibility to meet the purpose and need of the Proposed Action.

2.3.1 Extension/Modification of Temporary Waiver CPN-7

Naval Air Systems Command issued a *Modification to Temporary Airfield Safety Waiver (CPN-7)* to MCAS Camp Pendleton (Naval Air Systems Command 2015), pending permanent resolution. The temporary waiver allows for MCAS Camp Pendleton to continue operations while out of conformance with airfield obstruction safety regulations southwest of the runway. The modification to CPN-7 was granted to allow MCAS Camp Pendleton additional time to complete an EA for removal of the vegetation southwest of the runway. Continued use of the temporary CPN-7 waiver would not meet the purpose and need of the Proposed Action to ensure the safety of aviators, ground crews, and military and civilian personnel during MCAS Camp Pendleton air operations.

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

NEPA, CEQ regulations, and DoN and USMC procedures for implementing NEPA specify that an EA should focus only on those environmental resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of impact. Accordingly, the discussion of the affected environment and associated environmental analysis presented herein focuses on biological resources, cultural resources, and public health and safety. Table 3.0-3 provides a summary of potential environmental consequences, as well as CMs associated with implementation of the Proposed Action and the No-Action Alternative. Conversely, the following resources were not carried forward for analysis in this EA, as potential impacts were considered to be negligible or non-existent.

Geologic Resources. The initial maintenance of vegetation would require grading and filling of shallow depressions. The project area already has relatively flat or level topography. Therefore, there would be minimal, if any changes to topography during the grading phase and subsurface geology would not be altered. Any construction projects involving land disturbance greater than 1.0 ac (0.4 ha) require filing an application for coverage under the California Construction General Permit for Stormwater Discharges, State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ (National Pollution Discharge Elimination System No. CAS000002), as amended in 2010 and 2012. Grading under the Proposed Action would be subject to compliance with the SWRCB Construction General Permit. The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must list the best management practices (BMPs) that would be implemented to minimize soil erosion and protect water quality. In addition, the MCB Camp Pendleton alternative mitigation sites have relatively flat or level topography and there would be no grading or other activities associated with mitigation that would impact subsurface geology. Therefore, impacts to geologic resources would be negligible from implementation of the Proposed Action.

Water Resources. The Proposed Action would not involve construction of facilities or any other ground disturbing activities that could impact water resources. Vegetation transition within the project area would not impact water resources outside of the project area. No aquatic habitats, including waters of the U.S., occur within the project area. If mitigation were to occur within the MCB Camp Pendleton alternative mitigation sites, aquatic habitats would be avoided to the utmost extent and no permanent impacts would occur to waters of the U.S. In the unlikely event that habitat restoration/creation were to occur in waters of the U.S. within the MCB Camp Pendleton alternative mitigation sites, MCAS Camp Pendleton would submit an HMP and Pre-Construction Notification to the U.S. Army Corps of Engineers (USACE) for Nationwide Permit 27 (*Aquatic Habitat Restoration, Enhancement, and Establishment Activities*). Nationwide Permit 27 can be used to authorize compensatory mitigation projects, as long as the project would result in net increases in aquatic resource functions and services. Therefore, impacts to water resources would be negligible from implementation of the Proposed Action.

Air Quality. The Proposed Action would occur in the San Diego Air Basin (SDAB). Under the CAA, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for criteria pollutants, while the California Air Resources Board (CARB) establishes the state standards, termed the California Ambient Air Quality Standards (CAAQS) (CARB 2019a). The SDAB is in nonattainment of the state standards for ozone (O₃), fine particulate matter less

than or equal to 2.5 microns in diameter (PM_{2.5}), and suspended particulate matter less than or equal to 10 microns in diameter (PM₁₀) (CARB 2019b).

Although the Proposed Action would result in relatively minor emissions, and associated criteria pollutant emissions would not substantially contribute to air basin pollution, a quantitative analysis was conducted for comparison with the applicable *de minimis* threshold levels. Air quality impacts under the Proposed Action would primarily occur from combustive emissions due to the use of fossil fuel-powered equipment and fugitive dust emissions (PM₁₀ and PM_{2.5}) from the operation of equipment on exposed soil.

Emissions were estimated using the California Emissions Estimator Model, which is the current comprehensive tool for quantifying air quality impacts from land use projects throughout California. Assumptions were made regarding the total number of days each piece of equipment would be used and the number of hours per day each type of equipment would be used. Assumptions, model inputs, and emissions calculations are located in Appendix C.

Table 3.0-1 presents a summary of the estimated emissions associated with vegetation clearance and maintenance activities at MCAS Camp Pendleton under the Proposed Action. Estimated emissions from initial clearing and grading of vegetation in the project area would be below *de minimis* thresholds and would not trigger a formal Conformity Determination under the CAA General Conformity Rule. The long-term vegetation maintenance would be exempt from the San Diego County Air Pollution Control District General Conformity Regulations (Rule 1501), as the activity would be considered “routine maintenance and repair activities” (San Diego County Air Pollution Control District 2016).

Table 3.0-1. Proposed Action – Annual Emissions with Evaluation of Conformity

Construction Year	Emissions (tons/year)					
	VOCs	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year - 2020	0.04	0.44	0.27	<0.01	0.11	0.06
Conformity <i>de minimis</i> Limits	100	100	100	NA	NA	NA
Exceeds Conformity <i>de minimis</i> Limits?	No	No	No	NA	NA	NA

Legend: CO = carbon monoxide; NA = not applicable; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; VOCs = volatile organic compounds.

Notes: The SDAB is a moderate nonattainment area for the 8-hour O₃ NAAQS (VOCs and NO_x are precursors to the formation of O₃) and is a moderate maintenance area for CO (USEPA 2019). SO₂ is a precursor to PM_{2.5}, and is therefore included in the conformity analysis, even though the SDAB is in attainment of the SO₂ standards.

Potential habitat restoration/creation activities that could occur in the MCB Camp Pendleton alternative mitigation sites are unknown at this time, but would occur over a similar timeframe and area, and are expected to require a lesser number of vehicles and/or equipment, because no clearing or grading would occur. Therefore, any emissions associated with mitigation activities would also be anticipated to fall well below *de minimis* thresholds. A Record of Non-Applicability (RONA) is therefore appropriate and is included in Appendix C.

The potential effects of greenhouse gases (GHG) emissions are by nature global and cumulative and it is impractical to attribute climate change to individual activities. Therefore, an appreciable impact on global climate change would only occur when GHG emissions associated with the Proposed Action is combined cumulatively with GHG emissions from other human-made activities on a global scale. Table 3.0-2 summarizes the annual GHG emissions that would occur with implementation of the Proposed Action.

Table 3.0-2. Estimated Annual GHG Emissions – Proposed Action

Scenario/Activity	Metric tons per year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e ¹
Construction Emissions – 2020	49.37	0.02	-	49.75

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

As an indication of the nominal relative magnitude of these emissions, total annual equivalent carbon dioxide emissions in the U.S. in 2016, were approximately 6,511.3 million metric tons (USEPA 2018). Total equivalent carbon dioxide emissions in California in 2017 were approximately 424 million metric tons (CARB 2019a).

Emissions under the Proposed Action would be well below 25,000 metric tons of carbon dioxide, which is considered as a viable threshold warranting a more substantial evaluation of – but not necessarily a determination of – significance of climate change impact. Thus, the implementation of the Proposed Action would not contribute significantly to global climate change. Therefore, impacts to air quality would be negligible from the implementation of the Proposed Action.

Noise. The project area is located within a currently noisy area due to its location within and around MCAS Camp Pendleton. Noise levels in the project area are likely highest during periods of training activity. Likewise, Alternative Mitigation Site 1 is located adjacent to MCAS Camp Pendleton and Alternative Mitigation Site 2 is located adjacent to Vandegrift Blvd. Noise associated with the Proposed Action would be neither extreme nor unusual. There are no sensitive noise receptors (residences, schools) in the vicinity of the project area or the MCB Camp Pendleton alternative mitigation sites. Recurring maintenance activities and any mitigation activities would generate negligible amounts of noise. Therefore, impacts to the noise environment would be negligible from the implementation of the Proposed Action. Potential noise impacts on sensitive biological resources are discussed in Section 3.1, *Biological Resources*.

Environmental Justice. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to consider human health and environmental conditions in minority and low-income communities. MCAS and MCB Camp Pendleton are not in or surrounded by a community populated by census-defined minority and low-income populations. The Proposed Action would not result in a permanent change to population ethnicities or age distributions. There would be no human health or adverse environmental conditions placed upon minority and/or low-income populations from the implementation of the Proposed Action.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, helps ensure that federal agencies’ policies, programs, activities, and standards address environmental health and safety risks to children. The Proposed Action would occur on government property, where access is controlled. Child care facilities are not located within or adjacent to the project area or the MCB Camp Pendleton alternative mitigation sites. Standard job site safety measures would be implemented, which include securing equipment, materials, and vehicles, as well as neutralizing potential safety hazards, should unauthorized persons visit the site during non-working hours. Therefore, there would be no disproportionate impact to the health and safety of children from the implementation of the Proposed Action.

Socioeconomics. Implementation of the Proposed Action would not result in the displacement of people or businesses and would not change the economic character or stability of the surroundings. Contractors performing the work would be drawn from the neighboring communities where a robust local construction industry exists. In addition, there would be no change in public services. Therefore, negligible impacts to socioeconomics would occur from the implementation of the Proposed Action.

Land Use and Recreation. The Proposed Action would be in compliance with the *MCAS Camp Pendleton Master Plan* (MCAS Camp Pendleton 2015), the *Air Installation Compatible Use Zones* (MCAS Camp Pendleton 2017a), and the *MCB Camp Pendleton Base Master Plan* (USMC 2010). The Proposed Action, including any mitigation, would not change the nature of land use or surrounding facilities.

MCAS Camp Pendleton has no recreation facilities or activities, and there is no public access to MCAS Camp Pendleton. MCB Camp Pendleton does grant public access on its installation for recreation purposes. Access is granted to the public for the Paint Ball Park, the Bowling Alley, the horse stables, hunting, etc., which are not located near the project area or the MCB Camp Pendleton alternative mitigation sites. The project area and MCB Camp Pendleton alternative mitigation sites are not authorized for commercial or recreational use. Project activities would not have any effect on public access to either MCAS or MCB Camp Pendleton. Therefore, no impacts to land use or recreational access would occur from the implementation of the Proposed Action.

Aesthetics. Implementation of the Proposed Action would not adversely affect aesthetics or visual resources as the proposed vegetation management and maintenance at MCAS Camp Pendleton would be consistent with existing land use within MCAS Camp Pendleton. Furthermore, the project area is located within MCAS Camp Pendleton's levee and is not visible from any commercial or housing areas. Due to the small number of potential viewers, and the moderate visual quality of the location, effects to the overall visual quality of the project area are low. If riparian habitat restoration/creation occurs in either of the MCB Camp Pendleton alternative mitigation sites, the resulting habitat would add to and be consistent with the existing viewshed. Implementation of the Proposed Action would not adversely affect the visual setting. Therefore, negligible impacts to aesthetics would occur from the implementation of the Proposed Action.

Transportation. The Proposed Action, including potential habitat restoration/creation in the MCB Camp Pendleton alternative mitigation sites, would not subject roads in the project vicinity to significantly higher traffic volumes, as the number of vehicles used for project activities would be minimal. Vehicles within MCAS Camp Pendleton would generally be restricted to the Perimeter Road and would not affect transportation within the Air Station. Therefore, negligible impacts to transportation would occur from the implementation of the Proposed Action.

Utilities. Any existing utility lines that may run through the project area or the MCB Camp Pendleton alternative mitigation sites would be evaluated and accommodated before commencing project activities. Utility lines would be avoided to preserve uninterrupted service. Utility upgrades would not be required to accommodate the Proposed Action. Therefore, no impacts to utilities would occur from the implementation of the Proposed Action.

Hazardous Materials and Waste. It is not anticipated that hazardous materials and waste would be generated by, or encountered during, implementation of the Proposed Action. If hazardous materials or wastes are generated, they would be stored in compliance with local, state and federal regulations. Any hazardous materials or waste generated would be required to be manifested through the MCAS Camp Pendleton Hazardous Waste Manager for review and inspection. In the unlikely event that hazardous materials or wastes are brought on to the project area at MCAS Camp Pendleton, the contractor(s) would provide a list of proposed materials to MCAS Camp Pendleton for review and approval on the Authorized Use List. Hazardous materials and waste must be removed from MCAS Camp Pendleton and MCB Camp Pendleton within 60 days of initial generation. Therefore, no impacts to hazardous materials and waste would occur from the implementation of the Proposed Action.

Table 3.0-3. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
Biological Resources		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> The proposed transition of 25.29 acres (10.23 hectares) of riparian habitat to grassland would be mitigated for, consistent with the Riparian BO (USFWS 1995a) and following ESA Section 7 consultation with the USFWS, through a combination of Riparian BO ledger deductions and compensatory mitigation at a ratio of 1:1. Compensatory mitigation would occur either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat at either of the two alternative mitigation sites on MCB Camp Pendleton that are analyzed in this EA. General CMs and species-specific CMs from the ESA consultation would be implemented under the Proposed Action.</p>	<p><u>No Impact</u> There would be no change in existing conditions.</p>
<i>Conservation Measures</i>	<p><i>General Conservation Measures</i> BR-1 No access roads (temporary or permanent) would be constructed as part of the Proposed Action. BR-2 During riparian tree removal, ground disturbance would be minimized by grinding tree stumps to the ground. Riparian tree stumps would also be treated with herbicide to prevent regrowth (see CM 6 below). A small bulldozer, such as a Caterpillar® D-5, would be used as needed to load trucks or grade the resulting surface to prevent water from ponding. BR-3 Woody debris would be removed from the project area. BR-4 The proposed project would have a total area of greater than 1 acre (0.4 hectare) of soil disturbance and therefore would be required to obtain coverage under the California Construction General Permit for stormwater: SWRCB Order No. 2009-0009-DWQ (National Pollutant Discharge Elimination System No. CAS 000002). A Notice of Intent would be submitted to the Regional Water Quality Control Board and a SWPPP would be prepared for the project. A copy of the SWPPP would be kept at the project area. MCAS Camp Pendleton personnel responsible for stormwater management would oversee implementation and enforcement of the SWPPP. The SWPPP would incorporate BMPs for erosion and sedimentation controls, such as silt fences, silt basins, gravel bags, or other measures to control erosion and prevent the release of contaminants that could be harmful to federally listed species. BR-5 Exposed soils would be temporarily protected from erosion as necessary during rainfall events, and erosion and sedimentation controls would be installed immediately downslope of work areas. Erosion and sediment control measures would be maintained until work is completed and graded areas have been planted. BR-6 Only MCAS Camp Pendleton-approved herbicides/pesticides would be used. Herbicide/pesticide application would be in accordance with MCAS Camp Pendleton’s Exotic Species Control and Vegetation Maintenance Plan (NAVFAC Southwest 2016). Applicators shall be properly trained and certified. Excessive use and spraying before storm events would be avoided. Records of herbicide/pesticide use shall be submitted to MCAS Camp Pendleton in conformance with its Integrated Pest Management Plan (MCAS Camp Pendleton 2014).</p>	<p>No measures identified.</p>

Table 3.0-3. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<i>Conservation Measures</i>	<p>BR-7 Vehicles used in vegetation maintenance and potential habitat mitigation activities would be power-washed before entering MCAS and/or MCB Camp Pendleton to prevent weed transport to reduce the chance of disseminating weed propagules. All personnel working on this project should use a brush to brush off the weed seeds from their shoes before entering the project area. Vehicles and equipment must be clean and leak free and drip pans must be placed under parked vehicles.</p> <p>BR-8 An Oil Spill Response Plan would be prepared and reviewed and approved by appropriate federal, state, and local agencies. The Oil Spill Response Plan is required under state and federal regulations (Senate Bill 2040 and 40 CFR Part 300, the <i>National Oil and Hazardous Substances Pollution Contingency Plan</i>). The Oil Spill Response Plan would provide a list of emergency service providers. All work on MCAS Camp Pendleton would be carried out in accordance with the procedures outlined in the <i>MCAS Camp Pendleton Oil Spill Contingency Plan</i> (MCAS Camp Pendleton 2008).</p> <p>BR-9 To ensure the project does not result in takes of migratory birds, including listed species, initial vegetation transition work, recurring vegetation maintenance, and any potential habitat mitigation activities would occur between 1 September and 14 February, outside the avian breeding season (15 February to 31 August). Therefore, no pre-activity nest surveys would need to occur.</p> <p>BR-10 Impacts to 25.29 ac (10.23 ha) of riparian habitat occupied by federally listed species would be mitigated, consistent with the Riparian BO (USFWS 1995a), and consistent with results from ESA Section 7 consultation with the USFWS, through a combination of Riparian BO ledger deductions and compensatory mitigation at a ratio of 1:1. Compensation for individual impacts to habitat occupied by ARTO, LBVI, and/or SWFL is not additive, as some areas may be occupied by more than one species. Compensation is based on the total amount of each riparian habitat impacted multiplied by the appropriate mitigation ratio for that habitat. MCAS Camp Pendleton would offset any unavoidable permanent impacts to riparian habitats via purchase of credits from a USFWS-approved, offsite mitigation bank. In the event offsite mitigation is not available, feasible, or acceptable, MCAS Camp Pendleton would offset permanent riparian impacts on MCB Camp Pendleton, at a location mutually agreed upon with the USFWS. If mitigation were to occur on MCB Camp Pendleton, MCAS Camp Pendleton would manage the mitigation according to an HMP that would be approved by the USFWS prior to implementation.</p> <p>BR-11 Before implementing vegetation maintenance and/or potential habitat mitigation activities, the USFWS would be notified and all the terms and conditions in the BO issued for this project would be implemented.</p> <p>BR-12 The project biologist would have the ability to halt vegetation clearing, maintenance, and potential habitat mitigation activities, if necessary, to avoid unanticipated impacts to sensitive resources. If it is necessary to halt activities, the project biologist would contact the MCAS Camp Pendleton Environmental Department (MCAS Environmental) immediately to discuss appropriate actions, unanticipated impacts, and avoidance measures. As needed, MCAS Environmental would confer with the USFWS to ensure the proper implementation of species and habitat protection measures. The project biologist would provide a brief written report of the incident within 24 hours of the action to MCAS Environmental.</p>	<p>No measures identified.</p>

Table 3.0-3. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<p><i>Conservation Measures</i></p>	<p><i>Species-Specific Conservation Measures</i> <u>Arroyo Toad</u></p> <p>BR-13 A project biologist would be designated/approved by MCAS Environmental. The project biologist would have at least 2 years of independent experience conducting ARTO surveys, as well as demonstrated experience in handling the species.</p> <p>BR-14 Temporary silt fencing would be installed around the perimeter of all work areas, including MCB Camp Pendleton alternative mitigation sites, where ground disturbance is to occur within suitable ARTO habitat with the project biologist present.</p> <ul style="list-style-type: none"> a) The silt fencing would be installed at least 14 days before vegetation removal to allow enough time for ARTO surveys to be completed during optimal weather conditions. b) Such fencing would consist of woven nylon netting approximately 3 feet (0.9 meter) in height attached to wooden stakes. This would prevent movement of ARTOs into the project footprint. c) Before installing the fencing, a narrow trench approximately 6 inches (15 centimeters) deep would be excavated and the fence buried to prevent burrowing beneath the fence. If trenching is not possible, the bottom lip of the fence would have sand bags laid against it to hold it in place and deter ARTOs from burrowing under the fence. d) All fencing materials (i.e., mesh, stakes) would be removed following vegetation management activities. <p>BR-15 After exclusionary fencing has been installed, but before initiation of vegetation management activities and/or potential habitat mitigation activities, at least three nighttime surveys for ARTOs would be conducted within the fenced area by the project biologist. These surveys would be conducted during appropriate climatic conditions and during the appropriate hours (i.e., evenings, nights, and mornings) to maximize the likelihood of encountering ARTOs. If climatic conditions are not highly suitable for arroyo toad activity (no natural rainfall), ARTO habitat in the project footprint may be watered to encourage aestivating ARTOs to surface. All ARTOs found within the project area would be captured and translocated by the project biologist to the nearest suitable riparian habitat on the MCB Camp Pendleton side of the levee. ARTOs found within the MCB Camp Pendleton alternative mitigation sites would be translocated to suitable habitat outside of the fenced area(s). Upon completion of these surveys and before initiation of project activities, the project biologist would report the capture and release locations of all ARTOs found and relocated during these initial surveys to MCAS Environmental, who would report the findings to the USFWS.</p> <p>BR-16 After the initiation of vegetation management and/or potential habitat mitigation activities, the project biologist would be present each morning before project activities begin and during removal of excavation unit covers and soil stockpile tarps. The project biologist would check the integrity of the ARTO fence and remove and relocate any ARTOs that may have entered the area.</p> <p>BR-17 To the greatest extent possible, access to work sites would occur via preexisting access routes. Project-related vehicle travel would be limited to daylight hours, as ARTO movement across roadways occurs primarily during nighttime hours.</p>	<p>No measures identified.</p>

Table 3.0-3. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
<i>Conservation Measures</i>	<p>BR-18 Ingress and egress of project equipment and personnel would be kept to a minimum and would use a single access point to the site(s) where possible. Where movement of ARTOs into the project area or MCB Camp Pendleton alternative mitigation sites is possible, a road grate with a design approved by MCAS Environmental would be installed at access points to prevent movement of ARTOs into the enclosed area. Road grates would be inspected every morning for ARTOs by the project biologist.</p> <p>BR-19 Any dirt/sand piles left overnight would be covered with tarps or plastic with the edges sealed with sandbags, bricks, or boards to prevent ARTOs from burrowing into the dirt. Holes or trenches would be covered with material such as plywood or solid metal plates with the edges sealed with sandbags, bricks, or boards to prevent ARTOs from falling into holes or trenches. All holes and trenches within potential ARTO habitat would be inspected each morning by the project biologist.</p> <p>BR-20 The project biologist would be present at the end of the day to ensure that any excavations are properly covered to prevent ARTOs from entering any open pits and to check the integrity of the ARTO fence.</p> <p>BR-21 The project biologist would contact MCAS Environmental regarding any ARTO sightings. Any incidental excavation, capture and relocation, injury, or death of ARTOs in association with project activities would be reported immediately to MCAS Environmental, who would notify the USFWS.</p> <p>BR-22 All work areas would be kept as clean as possible to avoid attracting ARTO predators or insects (prey). All food-related trash would be placed in sealed bins or removed from the site regularly.</p> <p>BR-23 If required for dust control, water truck spraying would be conducted to the minimum extent necessary and in a manner that does not attract ARTOs into the project area. In particular, over-spraying would be avoided and spraying near occupied habitat would not occur.</p>	No measures identified.
<i>Cultural Resources</i>		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> No cultural resources exist within the MCAS Camp Pendleton project area, therefore, measures listed below are only applicable to the MCB Camp Pendleton alternative mitigation sites. All cultural resources within the MCB Camp Pendleton alternative mitigation sites would be avoided. Conditions of the MCB Camp Pendleton Programmatic Agreement (PA) would be implemented. There would be no adverse effect to historic properties.</p>	<p><u>No Impact</u> There would be no change in existing conditions.</p>
<i>Conservation Measures</i>	<p>CR-1 MCB Camp Pendleton must ensure that proposed activities and disturbances avoid direct and indirect effects to historic properties. If archaeological sites are eligible for the NRHP under 36 CFR 60.4(d), then the site boundary must be demarcated and excluded from the proposed undertaking. All other eligible historic properties for listing in the NRHP under other criteria, must be physically demarcated and avoided during the implementation of an undertaking.</p> <p>CR-2 Buffer zones may be established to ensure added protection where setting contributes to the property's eligibility under 36 CFR 60.4. The size of the buffer zone would be determined by the MCB Camp Pendleton archaeologist on a case-by-case basis.</p> <p>CR-3 Monitoring of eligible historic properties would occur to enhance the effectiveness of the protection measures described above.</p>	No measures identified.

Table 3.0-3. Potential Environmental Consequences

Resource Area	Proposed Action	No-Action Alternative
Public Health and Safety		
<i>Impact Summary</i>	<p><u>No Significant Impact</u> The Proposed Action would allow MCAS Camp Pendleton to conform to DoD and DoN airfield safety and planning regulations, thereby reducing the risk to flight safety posed by the height of the current riparian vegetation at the southwest end of the runway.</p>	<p><u>Adverse Impact</u> There would be no change in existing conditions; vegetation would continue to penetrate the Primary Surface, Clear Zones, and Transition Zones southwest of the MCAS Camp Pendleton runway. Aircraft operations and personnel would continue to be put at risk.</p>
<i>Conservation Measures</i>	<p>PHS-1 The vegetation management/restoration contractor(s) would be required to prepare an Accident Prevention Plan/Health and Safety Plan. This plan would include designs for standard safety measures to be implemented during vegetation management/restoration activities. The health and safety plan would be prepared in accordance with applicable federal, state, and local laws and regulations.</p> <p>PHS-2 Any hazardous materials or waste generated would be required to be manifested through the MCAS Camp Pendleton Hazardous Waste Manager for review and inspection. In the unlikely event that hazardous materials or wastes are brought on to the project area at MCAS Camp Pendleton, the contractor(s) would provide a list of proposed materials to MCAS Camp Pendleton for review and approval on the Authorized Use List. Hazardous materials and waste must be removed from MCAS Camp Pendleton and MCB Camp Pendleton within 60 days of initial generation.</p>	<p>No measures identified.</p>

3.1 BIOLOGICAL RESOURCES

3.1.1 Definition of Resource

Biological resources include plant and animal species and the habitats within which they occur that would potentially be affected by the Proposed Action. For the purposes of this EA, these resources are divided into four categories as follows:

- *Plant Communities* (Section 3.1.2.1) include plant associations and their dominant constituent species. Unvegetated, disturbed, and/or developed habitats are also discussed in this section. Special-status plant species are discussed in more detail in a separate section (see below).
- *Aquatic Habitats* (Section 3.1.2.2) includes all permanent and seasonally aquatic habitats with an emphasis on wetlands and other waters of the U.S.
- *Wildlife* (Section 3.1.2.3) includes the characteristic animal species that occur in the project area. Special consideration is given to bird species protected under the MBTA and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. Special-status animal species are discussed in more detail in a separate section (see below).
- *Special Status Species* (Section 3.1.2.4) are defined as plant and animal species that are listed, have been proposed for listing, or are candidates for listing as threatened or endangered under the federal ESA, the California ESA, and other species of concern as recognized by state or federal agencies.

For the purpose of this EA, biological resources are presented below as occurring either in the project area (MCAS Camp Pendleton) or the two alternative mitigation sites (MCB Camp Pendleton).

3.1.2 Affected Environment

3.1.2.1 Plant Communities

MCAS Camp Pendleton Project Area

The MCAS Camp Pendleton project area is dominated by riparian scrub and riparian forest habitat. Plant communities in the project area are shown on Figure 3.1-1. Only riparian plant communities within the project area would be transitioned to grassland habitat; these plant communities are described below and the associated impacts are provided in Table 3.1-1. Grassland habitat that already occurs within the project area would not be immediately impacted by project activities, but would be subject to regular monitoring and maintenance.

Plant community boundaries and acreages within the MCAS Camp Pendleton project area (Figure 3.1-1 and Table 3.1-1) are based on the most current MCAS Camp Pendleton geographic information system (GIS) data layers (MCAS Camp Pendleton 2019a). Plant community classifications are based on the classification system developed by Holland (1986), and updated by Oberbauer et al. (2008) for San Diego County.

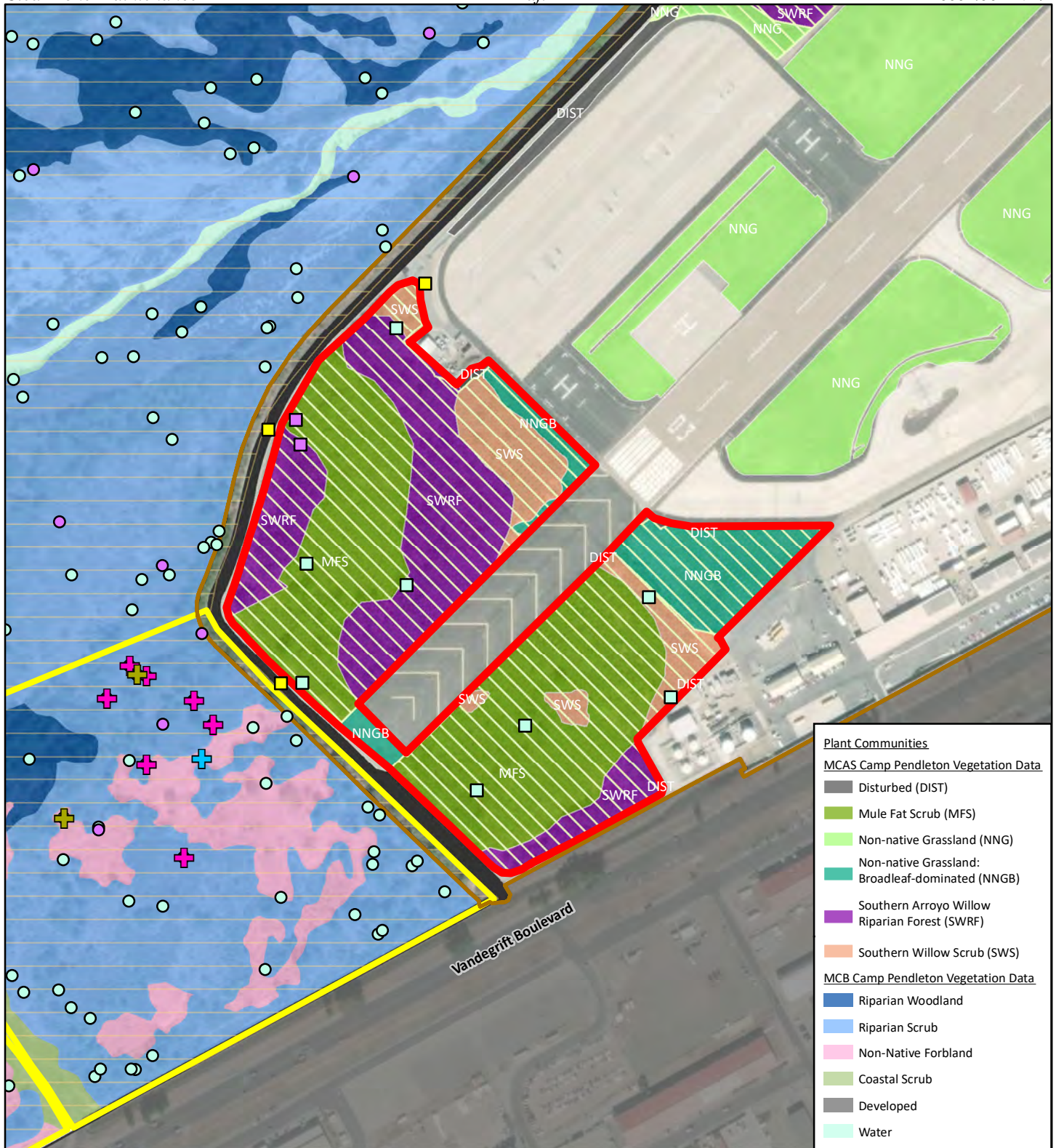


Figure 3.1-1. Biological Resources in the MCAS Camp Pendleton Project Area

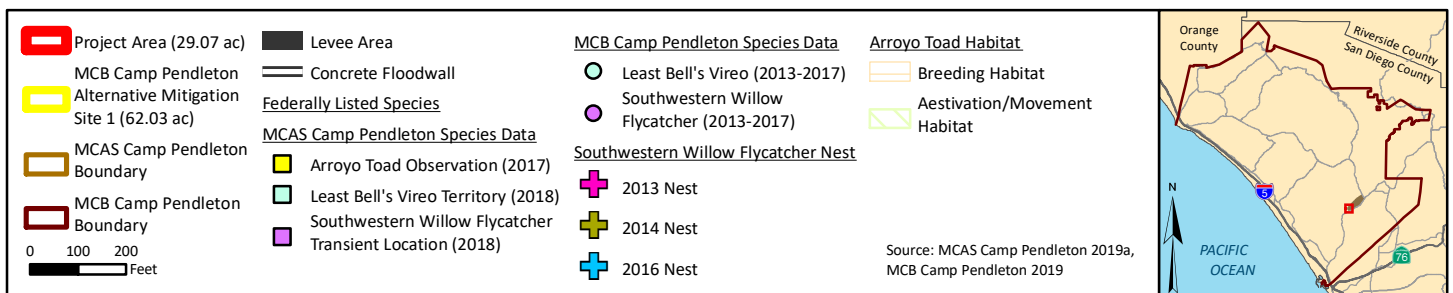


Table 3.1-1. Plant Communities in the MCAS Camp Pendleton Project Area

Plant Community	Acronym	Acres
Riparian (to be transitioned to grassland habitat)		
Mulefat Scrub	MFS	13.79
Southern Arroyo Willow Riparian Forest	SWRF	8.25
Southern Willow Scrub	SWS	3.25
	Subtotal	25.29
Grassland (to be maintained)		
Non-native Grassland: Broadleaf-dominated	NNGB	3.50
Disturbed		0.28
	TOTAL	29.07

Source: MCAS Camp Pendleton 2019a.

Mulefat Scrub (MFS) is a riparian scrub community, with greater than 50 percent (%) ground cover, that typically occurs on coarse alluvial soils in intermittent streambeds and on floodplains. It is generally a species-poor community dominated by mulefat (*Baccharis salicifolia*) and often represents an early seral stage in the establishment of willow- or sycamore-dominated riparian forests. Patches of MFS are typically found along the outer edges of other riparian communities. Mulefat typically grows to 9-12 ft (3-4 m), although it can occasionally reach 15 ft (5 m) or more. Other characteristic species in the project area include arroyo willow (*Salix lasiolepis*) and poison hemlock (*Conium maculatum*). Yerba mansa (*Anemopsis californica*) is a common species within and along the edges of MFS in the project area, indicating a prevalence of alkali soils. Patches of MFS are typically found along the outer edges of other riparian communities.

Southern Arroyo Willow Riparian Forest (SWRF) is a winter-deciduous riparian forest dominated by moderately tall broad-leaved trees and dominated by arroyo willow and having closed, or nearly-closed canopies. Characteristic species include mugwort (*Artemisia douglasiana*), mulefat, California sycamore (*Platanus racemosa*), cottonwoods (*Populus* spp.), black willow (*Salix gooddingii*), and stinging nettle (*Urtica dioica*). In the project area, SWRF is dominated by arroyo willow, red willow (*Salix laevigata*), and black willow. Black willows are known to grow to 60 ft (18 m) tall within the project area. The understory is usually composed of mulefat or shrubby willows.

Southern Willow Scrub (SWS) is a dense, winter-deciduous riparian scrub community with greater than 60% ground cover found along the major rivers of southern California. In the project areas, it is typically dominated by arroyo willow, sandbar willow (*Salix exigua*), and mulefat. Associated understory herbaceous species include poison oak (*Toxicodendron diversilobum*), western ragweed (*Ambrosia psilostachya*), and non-native species such as giant reed (*Arundo donax*) and poison hemlock.

Non-native Grassland: Broadleaf-dominated (NNGB) is dominated by one or more non-native, invasive broadleaf (forb) species. NNGB is generally found in disturbed areas. As previously mentioned, this portion of the project area is already subject to regular mowing/maintenance. Under the Proposed Action, this area would continue to be maintained to conform to the Clear Zone, Transition Zone, and Primary Surface safety requirements.

MCB Camp Pendleton Alternative Mitigation Sites

The two MCB Camp Pendleton alternative mitigation sites occur in the SMR floodplain. Plant communities in the MCB Camp Pendleton alternative mitigation sites are presented on Figures 3.1-2 and 3.1-3 and associated acreages are presented in Tables 3.1-2 and 3.1-3. Plant community boundaries in the alternative mitigation sites are based on the most current MCB Camp Pendleton GIS data layers (MCB Camp Pendleton 2019). Descriptions of plant communities and habitats occurring on MCB Camp Pendleton are found in Appendix G of the Joint Integrated Natural Resource Management Plan (INRMP) (MCB and MCAS Camp Pendleton 2018).

Table 3.1-2. Plant Communities in MCB Camp Pendleton Alternative Mitigation Site 1

Plant Community	Acres
<i>Riparian and Bottomland</i>	
Riparian Scrub	35.92
Riparian Woodland	9.87
Freshwater Marsh	0.10
Subtotal	45.89
<i>Grassland</i>	
Non-native Forbland	13.24
<i>Scrub</i>	
Coastal Scrub	1.95
<i>Disturbed/Developed</i>	
Developed	0.05
TOTAL	61.13

Source: MCB Camp Pendleton 2019.

Table 3.1-3. Plant Communities in MCB Camp Pendleton Alternative Mitigation Site 2

Plant Community	Acres
<i>Riparian and Bottomland</i>	
Arundo Scrub	10.93
Tamarisk Scrub	4.70
Freshwater Marsh	3.30
Riparian Scrub	164.51
Riparian Woodland	237.35
Open Water/Open Gravel	0.16
Subtotal	420.95
<i>Grassland</i>	
Non-native Forbland	26.99
<i>Scrub</i>	
Coastal Scrub	6.14
<i>Woodland (Upland)</i>	
Eucalyptus Woodland	0.86
<i>Disturbed/Developed</i>	
Developed	0.69
TOTAL	455.63

Source: MCB Camp Pendleton 2019.

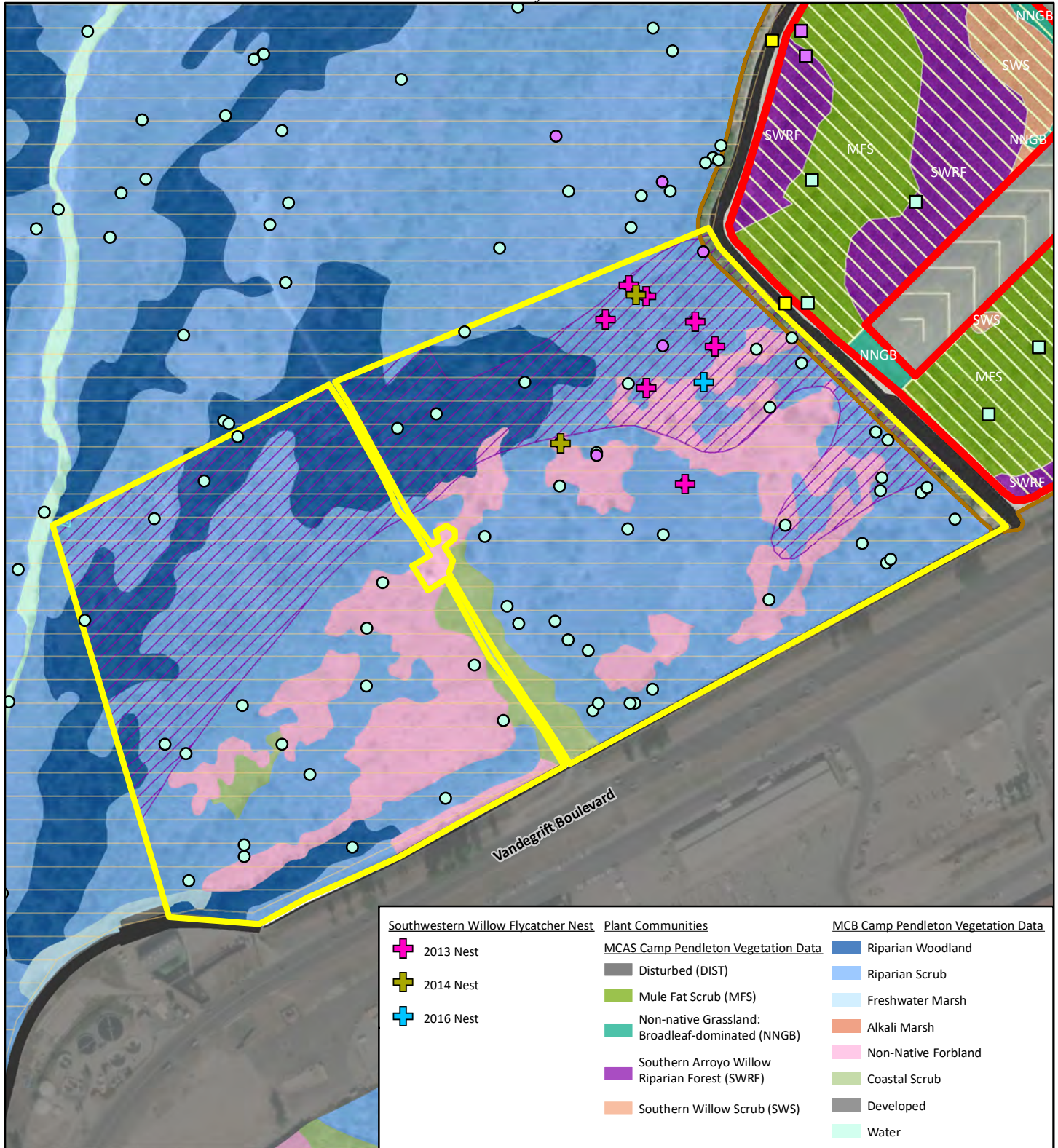
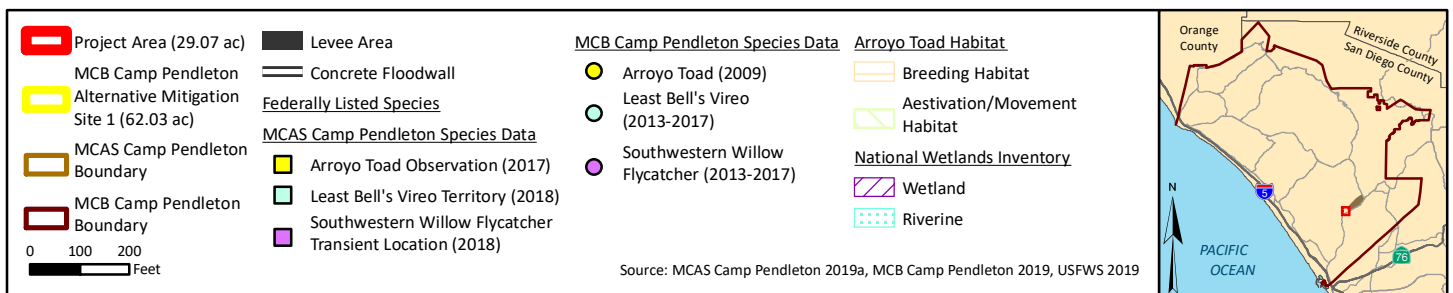


Figure 3.1-2. Biological Resources in MCB Camp Pendleton Alternative Mitigation Site 1



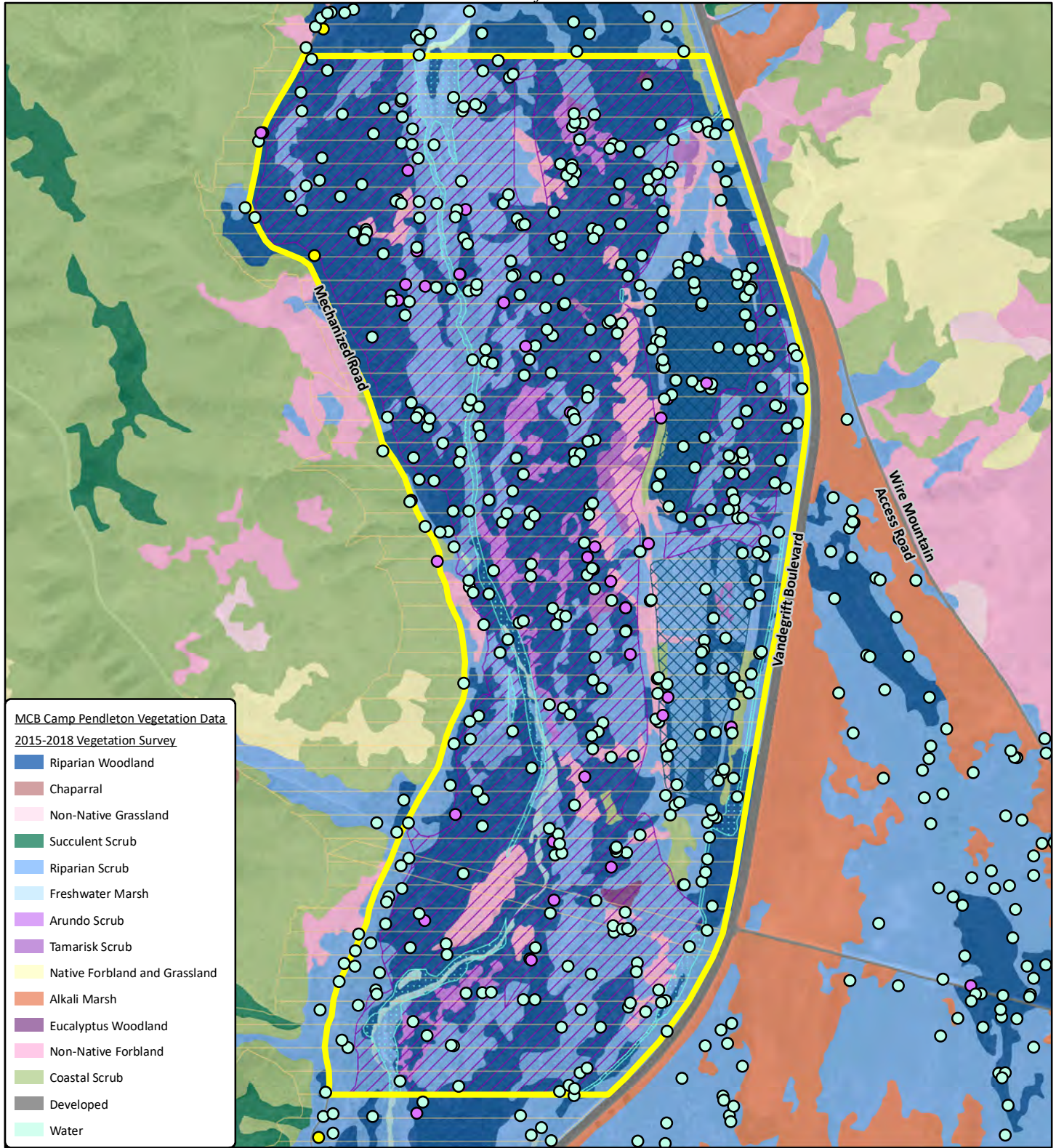
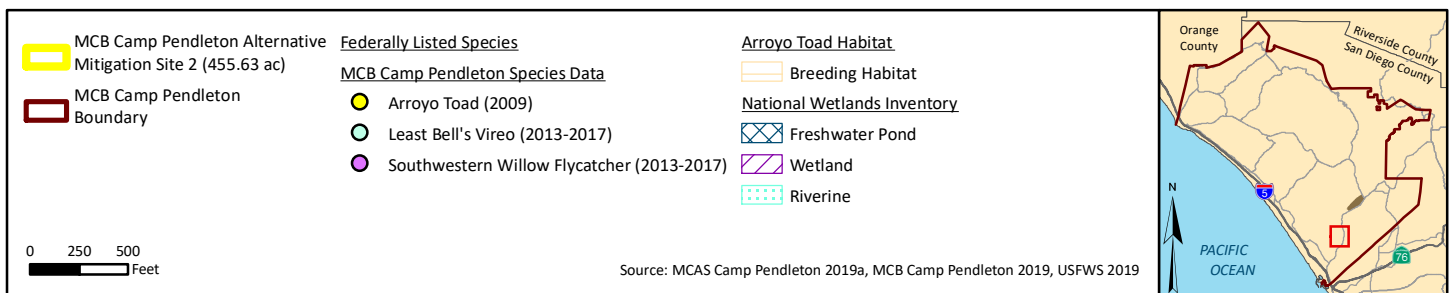


Figure 3.1-3. Biological Resources in MCB Camp Pendleton Alternative Mitigation Site 2



3.1.2.2 Aquatic Habitats

MCAS Camp Pendleton Project Area

No waters of the U.S. or other aquatic habitats occur within the project area. For the purpose of this EA, discussion of aquatic habitats is restricted to the MCB Camp Pendleton alternative mitigation sites.

MCB Camp Pendleton Alternative Mitigation Sites

Figures 3.1-2 and 3.1.3 present the National Wetlands Inventory (NWI)-mapped wetlands in the MCB Camp Pendleton alternative mitigation sites. The NWI is a program managed by the USFWS that provides geospatial information to the public regarding the potential extent and status of wetlands and deepwater habitats in the U.S. Wetlands and other features mapped in the NWI are primarily based on the interpretation of aerial photographs and topographic maps, and as such are not necessarily accurate or up-to-date, but they indicate the presence of potential wetlands and other aquatic features. Conversely, the absence of NWI features is not sufficient to conclude that no wetlands or other aquatic features are present.

Both MCB Camp Pendleton alternative mitigation sites are situated on the SMR floodplain and contain wetland habitats (Figures 3.1-2 and 3.1-3). Alternative Mitigation Site 2 also contains a segment of the SMR channel (Figure 3.1-3).

3.1.2.3 Wildlife

MCAS Camp Pendleton Project Area

A wildlife inventory survey conducted at MCAS Camp Pendleton between 2015 and 2016 documented 50 bird species, 10 mammal species, 9 reptile species, and 3 amphibian species (MCAS Camp Pendleton 2016). In addition, 160 invertebrate species have been documented on MCAS Camp Pendleton (MCAS Camp Pendleton 2016). The undeveloped portion of the project area contains riparian habitat that hosts a variety of wildlife species. All of the reptiles and amphibians, most of the mammals, and a small percentage of the birds that occur on MCAS Camp Pendleton are year-round residents. The rest are seasonal residents, wide-ranging migrants, or transient visitors. Nearly all bird species occurring on MCAS Camp Pendleton are protected under the MBTA and are given special consideration under EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. In 2014, the DoD signed a Memorandum of Understanding with the USFWS to promote the conservation of migratory birds (DoD and USFWS 2014).

MCB Camp Pendleton Alternative Mitigation Sites

A total of 559 wildlife species, including more than 60 fish, 10 amphibian, 30 reptile, 50 mammal, 350 bird, and hundreds of invertebrate species have been documented on MCB Camp Pendleton (MCB and MCAS Camp Pendleton 2018). The two MCB Camp Pendleton alternative mitigation sites largely contain riparian habitats associated with the floodplain of the SMR, with adjacent lands that consist of developed, disturbed, scrub, and grassland habitats. Some wildlife species on MCB Camp Pendleton, especially those having special-status designations, are limited in distribution and/or occurrence to a single habitat type. Most, however, are generalists and will use multiple habitats for shelter and foraging.

Collectively, due to their locations in the SMR floodplain, the MCB Camp Pendleton alternative mitigation sites provide a diverse array of habitat types, including high quality riparian habitat, aquatic habitats, and open grass. As such, the MCB Camp Pendleton alternative mitigation sites likely support a high diversity of birds, including rare and listed species (MCB and MCAS Camp Pendleton 2018). As with MCAS Camp Pendleton, nearly all bird species occurring on MCB Camp Pendleton are protected under the MBTA and

are given special consideration under EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.

3.1.2.4 Special Status Species

MCAS Camp Pendleton Project Area

Based on current GIS data (MCAS Camp Pendleton 2019a) and site conditions, the potential occurrence of federally listed threatened and endangered species in the MCAS Camp Pendleton project area is summarized in Table 3.1-4.

Table 3.1-4. Federally Listed Species in the MCAS Camp Pendleton Project Area

Common Name	Scientific Name	Status ¹	Habitat	Occurrence in Project Area
<i>Amphibians</i>				
Arroyo Toad	<i>Anaxyrus californicus</i>	Endangered	Rivers, major streams, surrounding uplands	Occurs in the project area. No breeding habitat occurs within MCAS Camp Pendleton.
<i>Birds</i>				
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Endangered	Willow and mulefat dominated riparian vegetation	Breeds in riparian vegetation throughout MCAS Camp Pendleton.
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Willow dominated riparian in close proximity to water or saturated soil	Occurs transiently on MCAS Camp Pendleton. Does not breed on MCAS Camp Pendleton.

Sources: Feree and Clark 2018; MCAS Camp Pendleton 2019a.

The USMC is preparing a Biological Assessment to engage in formal Section 7 consultation with the USFWS in support of this EA for potential impacts to federally listed species and their habitats at MCAS Camp Pendleton. All negotiated CMs finalized in the resulting BO, would be extrapolated and incorporated into the Final EA, and would be implemented under the Proposed Action to reduce impacts to federally listed species. The California Department of Fish and Wildlife BIOS database was reviewed, but state special status species are not discussed in this document.

All lands owned or controlled by MCAS Camp Pendleton and MCB Camp Pendleton are excluded from critical habitat designation under Section 4(a)(3) of the ESA due to the effectiveness of the Joint INRMP in providing for the conservation of listed species (MCB and MCAS Camp Pendleton 2018).

Arroyo Toad

The arroyo toad (ARTO) was federally listed as endangered on 16 December 1994 (USFWS 1994) and a recovery plan is available (USFWS 1999). The 1999 recovery plan identified the SMR, San Onofre Creek, and San Mateo Creek and their tributaries as recovery units for the species (USFWS 2009) because toad breeding pools exist in these waterways.

The ARTO is a small toad that requires shallow, slow moving streams for breeding and early development and uses the surrounding riparian habitat, especially marginal zones above and between stream channels, for foraging, resting, and dispersal up- and downstream. Reproduction is dependent on availability of shallow, still, or low-flow pools in which breeding, egg laying, and larval development occur. Breeding and larval development typically occur between March and July, depending upon weather conditions (MCB and MCAS Camp Pendleton 2018). During the non-breeding season, generally late fall and winter (Sweet 1992), adults are essentially terrestrial and disperse more widely into adjacent habitat to find suitable

soil for burrowing, which include but are not limited to riparian woodlands, coastal sage scrub, chaparral, and grassland (USFWS 2009). Metamorphs will disperse, primarily within and adjacent to breeding areas, until they migrate into burrows for the non-breeding season.

After the completion of the levee in 2000, riparian habitat within MCAS Camp Pendleton was isolated from the main floodplain. Moreover, successful ARTO reproduction on MCAS Camp Pendleton is considered unlikely because of the absence of persistent, shallow, slow moving water, which they require for breeding (Sweet 1992). A study conducted in 2015-2017 found that ARTO are able to disperse from the SMR channel to MCAS Camp Pendleton likely by climbing over sections of the levee that have low inclines and are utilizing riparian scrub and riparian woodland habitat on MCAS Camp Pendleton as foraging habitat and refugia (MCAS Camp Pendleton 2017b).

Although yearling juvenile ARTO were detected at MCAS Camp Pendleton in the 2015-2017 study (MCAS Camp Pendleton 2017b), it has been documented that juvenile ARTO have a propensity to “wander” along stream channels, presumably because they are less experienced with identifying suitable foraging habitats than are adults (Mitrovich et al. 2011). Therefore, the study concluded that presence of juvenile toads alone is not evidence that breeding is occurring within habitats on MCAS Camp Pendleton (MCAS Camp Pendleton 2017b). Absence of ARTO environmental DNA within water bodies on MCAS Camp Pendleton during the 2015-2017 study supports the contention that breeding is unlikely to be occurring on MCAS Camp Pendleton (MCAS Camp Pendleton 2017b).

Based on ARTO survey work completed in 2017 (MCAS Camp Pendleton 2017b), and in agreement with the USFWS, MCAS Camp Pendleton concluded that approximately 68 ARTO could be present within habitats on MCAS Camp Pendleton, the majority of which likely occur in and utilize riparian woodland habitats outside of the project area. ARTO occurrence data for MCAS Camp Pendleton from the 2015-2017 study (MCAS Camp Pendleton 2017b) and ARTO habitats in the project area are shown on Figure 3.1-1.

Least Bell's Vireo

The USFWS listed the least Bell's vireo (LBVI) as endangered on 2 May 1986 (USFWS 1986). A draft recovery plan is available for this species (USFWS 1998). The LBVI is a small, migratory songbird that arrives at MCAS Camp Pendleton as early as mid-March and departs for its wintering grounds in Baja California by September. The breeding season is from 15 March through 31 August. The LBVI primarily inhabits dense willow dominated riparian habitats with lush understory vegetation. The subspecies forages and nests primarily in willows (Lynn and Kus 2010).

Currently, the LBVI is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties. Substantial LBVI populations are currently found on five rivers in San Diego County—the Tijuana, Sweetwater, San Diego, San Luis Rey, and Santa Margarita rivers—with smaller populations along other drainages (MCB and MCAS Camp Pendleton 2018). As a result of concerted programs focused on preserving, enhancing, and creating suitable nesting habitat, the LBVI population has steadily increased in size along several of its breeding drainages in southern California.

A total of 13 LBVI territories were identified during surveys and weekly territory monitoring at MCAS Camp Pendleton in 2018, an increase from the 11 territories identified in 2017. All 13 territorial males were confirmed as paired and occurred throughout the riparian habitats on MCAS Camp Pendleton (Ferree and Clark 2018). Table 3.1-5 presents the number of LBVI territories identified on MCAS Camp Pendleton between 2012 and 2018.

Table 3.1-5. Male Territorial Least Bell’s Vireos at MCAS Camp Pendleton 2012-2018

2012	2013	2014	2015	2016	2017	2018	Average
12	16	18	17	11	11	13	14

Figure 3.1-1 presents the 2018 LBVI territories within the project area. All riparian habitats in the project area provide suitable breeding habitat for LBVI.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (SWFL) was federally listed as endangered on 27 February 1995 (USFWS 1995b) and a comprehensive recovery plan was adopted in 2002 (USFWS 2002). The SWFL is one of three subspecies of willow flycatcher. Other subspecies of willow flycatcher are listed as endangered by the state of California and can occur as transients on MCAS and MCB Camp Pendleton (Howell and Kus 2009). The SWFL is a neotropical migrant that nests in and inhabits riparian scrub and woodland habitats. Nesting SWFLs prefer willow and mulefat thickets and invariably nest near surface water or saturated soils that host high numbers of flying insects, the primary food for SWFLs (MCB and MCAS Camp Pendleton 2018). Male SWFLs typically arrive in southern California at the end of April, while females arrive approximately 1 week later (Howell and Kus 2011). The species may be present through 31 August (MCB and MCAS Camp Pendleton 2018).

Threats to the species, population-wide, are habitat loss, human disturbance, and nest parasitism by cowbirds. The species is also threatened by random fluctuations and inbreeding effects in small, localized breeding populations (USFWS 2013).

The total population of SWFL is relatively small, consisting of approximately 100 pairs at the time the species was listed (1995) and approximately 1,300 pairs in 2013 (Howell and Kus 2012; Sogge et al. 2010; USFWS 2014). Three transient flycatchers were detected on MCAS Camp Pendleton during protocol surveys in 2018 (Ferree and Clark 2018). No transient flycatchers were detected on MCAS Camp Pendleton during protocol surveys in 2019 (MCAS Camp Pendleton 2019b), and SWFL are not known to breed on MCAS Camp Pendleton. Therefore, riparian habitats on MCAS Camp Pendleton are considered non-breeding transitory/foraging habitat for SWFL.

MCB Camp Pendleton Alternative Mitigation Sites

Based on current GIS data (MCB Camp Pendleton 2019) and site conditions, the potential occurrence of federally listed threatened and endangered species in the MCB Camp Pendleton alternative mitigation sites is summarized in Table 3.1-5.

Of the species listed in Table 3.1-5, the yellow-billed cuckoo and the southern California steelhead have such rare historical occurrences and their likelihood of experiencing any affect from the Proposed Action is so low that they are not analyzed further in this EA. Additionally, the SMR channel would not be impacted by any mitigation activities. As such, the southern California steelhead, and other fish species, would not be impacted by the Proposed Action.

Table 3.1-5. Federally Listed Species in the MCB Camp Pendleton Alternative Mitigation Sites

Common Name	Scientific Name	Status ¹	Habitat	Potential Occurrence
Amphibians				
Arroyo Toad	<i>Anaxyrus californicus</i>	Endangered	Rivers, major streams, surrounding uplands	Known to breed in and adjacent to both MCB Camp Pendleton alternative mitigation sites.
Birds				
Coastal California Gnatcatcher	<i>Poliophtila californica californica</i>	Threatened	Coastal sage scrub	Not known to occur in the MCB Camp Pendleton alternative mitigation sites, but likely utilizes scrub habitats adjacent to Alternative Mitigation Site 2.
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	Endangered	Willow and mulefat dominated riparian vegetation	Breeds in riparian vegetation throughout MCB Camp Pendleton. Known to breed in both alternative mitigation sites.
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Willow dominated riparian in close proximity to water or saturated soil	Known to occur in and adjacent to both MCB Camp Pendleton alternative mitigation sites. Breeds in Alternative Mitigation Site 1.
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened	Riparian areas (on MCB Camp Pendleton only rarely found along the SMR)	Very low potential to occur as a rare/transient summer visitor along the SMR corridor.
Fish				
Southern California Steelhead	<i>Oncorhynchus mykiss</i>	Endangered	Rivers and major streams	Known to occur in the SMR (most recently observed in 2009 in the upper SMR, outside of MCB Camp Pendleton).

Sources: MCB and MCAS Camp Pendleton 2018; MCB Camp Pendleton 2019.

Arroyo Toad

On MCB Camp Pendleton, ARTOs occur in the SMR and its tributaries, De Luz and Roblar creeks; in San Onofre Creek and its tributary, Jardine Canyon; and San Mateo Creek and its tributary, Talega Creek. ARTOs on MCB Camp Pendleton may represent some of the largest remaining populations and the only one occurring on an undammed major river system within southern California (MCB and MCAS Camp Pendleton 2018). Although there is no current estimate of the ARTO population on MCB Camp Pendleton, the population in the lower SMR drainage is the largest and most stable on the Base (MCB and MCAS Camp Pendleton 2018). The ARTO breeds and occurs along the SMR and the sandy terraces in the MCB Camp Pendleton alternative mitigation sites (refer to Figures 3.1-2 and 3.1-3) (Mitrovich et. al 2011; Brehme et al. 2014; MCB and MCAS Camp Pendleton 2018; MCB Camp Pendleton 2019).

Coastal California Gnatcatcher

The coastal California gnatcatcher (CAGN), a subspecies of the California gnatcatcher, was federally listed threatened on 30 March 1993 (USFWS 1993). The CAGN is an obligate, permanent resident of coastal sage scrub vegetation, but they will make limited use of adjacent habitats outside of the breeding season. The breeding season extends from 15 February through 31 August, with peak nesting activities occurring from mid-March through May (USFWS 2007).

The removal of or damage to coastal sage scrub on MCB Camp Pendleton is prohibited without proper ESA consultation and mitigation, and training activities in the vicinity of occupied habitat are required to remain on existing routes during the breeding season.

Occupied coastal sage scrub habitat occurs adjacent to but outside of Alternative Mitigation Site 2 (Figure 3.1-3). No CAGN territories have been documented in either of the MCB Camp Pendleton alternative mitigation sites (MCB Camp Pendleton 2019).

Least Bell's Vireo

The LBVI inhabits and breeds in riparian habitats on MCB Camp Pendleton during its breeding season from 15 March through 31 August. In 2010, the statewide LBVI population was estimated at over 3,000 territories, over 1,000 of which occurred on MCB Camp Pendleton (MCB and MCAS Camp Pendleton 2018; Lynn and Kus 2013).

Figures 3.1-2 and 3.1-3 present historic and recent LBVI breeding territories within riparian habitats in the MCB Camp Pendleton alternative mitigation sites, as identified using MCB Camp Pendleton GIS data (MCB Camp Pendleton 2019). All riparian habitats in the MCB Camp Pendleton alternative mitigation sites provide suitable breeding habitat for LBVI.

Southwestern Willow Flycatcher

The SWFL recovery plan (USFWS 2002) recognizes the importance of the SMR on MCB Camp Pendleton to the species. Management for the SWFL on MCB Camp Pendleton is currently addressed in the INRMP (MCB and MCAS Camp Pendleton 2018) and the Riparian BO (USFWS 1995a).

The SWFL is a rare breeder at MCB Camp Pendleton. However, SWFL do breed on the MCB Camp Pendleton side of the levee, in Alternative Mitigation Site 1 (refer to Figure 3.1-2). MCB Camp Pendleton has implemented management programs for protecting the SWFL and enhancing its breeding habitat. Management efforts are guided by the Riparian BO (USFWS 1995a). Under the Riparian BO, MCB Camp Pendleton maintains a minimum baseline of 1,200 ac (486 ha) and an additional bank of 1,000 ac (405 ha) of riparian habitat to support the SWFL and other riparian species (MCB and MCAS Camp Pendleton 2018; USFWS 2005).

3.1.3 Environmental Consequences

This section presents an analysis of potential direct, indirect, temporary, and permanent impacts to biological resources that could result from implementation of the Proposed Action.

Direct impacts are the immediate result of project-related activities (e.g., direct mortality or disturbance of species, or removal of vegetation and habitat during construction). Direct impacts may be either temporary (reversible) or permanent (irreversible).

Indirect impacts are caused by or result from project-related activities, but occur later in time or are spatially removed from the activities (e.g., shifts in vegetation composition or increased predation risk over time). Indirect impacts are diffuse, resource-specific, and less amenable to quantification or mapping than direct impacts, but still need to be considered. Indirect impacts typically extend beyond the immediate project footprint(s).

Potential project impacts are described as temporary or permanent based on their anticipated longevity. Project impacts are evaluated based upon an understanding of project configuration and components, and methods and equipment that would be used. All potential project effects are described as they would occur

after the CMs listed in Table 3.0-3 are implemented. Following construction, all temporarily impacted habitats would be restored to original condition.

3.1.3.1 Proposed Action

Plant Communities

MCAS Camp Pendleton Project Area

The project area is dominated by riparian scrub and riparian forest habitat. Plant communities in the project area are shown on Figure 3.1-1. Under the Proposed Action, 25.29 ac (10.23 ha) of riparian plant communities (Table 3.1-1) in the project area would be transitioned to grassland habitat. Grassland habitat that already occurs within the project area would not be immediately impacted by project activities, but would be subject to regular monitoring and maintenance. Permanent impacts to 25.29 ac (10.23 ha) of riparian habitat would be mitigated either through purchase of off-Station credits at a USFWS-approved conservation bank or restoration/creation of habitat at either of the two alternative mitigation sites on MCB Camp Pendleton.

MCB Camp Pendleton Alternative Mitigation Sites

Both MCB Camp Pendleton alternative mitigation sites are dominated by riparian habitats (Figures 3.1-2 and 3.1-3 and Tables 3.1-2 and 3.1-3). If habitat restoration/creation were to occur within either site to compensate for vegetation impacts under the Proposed Action, riparian habitat ecological functions and services would be enhanced within the MCB Camp Pendleton alternative mitigation sites. Therefore, the Proposed Action would have no significant impacts on plant communities.

Aquatic Habitats

MCAS Camp Pendleton Project Area

Under the Proposed Action, no waters of the U.S. or other aquatic habitats would be impacted within the project area, as no such features occur in the project area.

MCB Camp Pendleton Alternative Mitigation Sites

Potential wetlands and other waters of the U.S. occurring in the MCB Camp Pendleton alternative mitigation sites are shown on Figures 3.1-2 and 3.1-3. If habitat restoration/creation were to occur within waters of the U.S. in either site, MCAS Camp Pendleton would have to submit an HMP and Pre-Construction Notification to the USACE for Nationwide Permit 27 (*Aquatic Habitat Restoration, Enhancement, and Establishment Activities*). Nationwide Permit 27 can be used to authorize compensatory mitigation projects, as long as the project would result in net increases in aquatic resource functions and services. Therefore, the Proposed Action would have no direct impacts on aquatic habitats; but, if habitat restoration/creation were to occur within the MCB Camp Pendleton alternative mitigation sites, impacts to aquatic habitats would be beneficial.

Wildlife

MCAS Camp Pendleton Project Area

Vegetation transition under the Proposed Action would affect existing riparian wildlife habitats within the project area. Vegetation management activities would potentially eliminate or displace wildlife from the project area. Individuals of the smaller, less mobile and burrowing species would potentially be killed by equipment, whereas mobile species would disperse to surrounding areas. Substantial areas of riparian, scrub, and grassland habitats would remain unaffected in the vicinity of the project area, largely on the

MCB Camp Pendleton side of the levee, allowing temporary refuge for wildlife during construction. All vegetation management activities would be conducted in a manner consistent with ESA Section 7 consultation requirements and species-specific CMs. Vegetation management would occur outside the migratory bird breeding season (15 February to 31 August) to avoid impacts to nesting birds. Through the implementation of the CMs listed in Table 3.0-3, and the implementation of compensatory mitigation (to be provided in a manner consistent with the Riparian BO [USFWS 1995a] and as determined as a result of Section 7 consultation with the USFWS), impacts would not result in a measurable negative effect on migratory bird populations protected under the MBTA.

MCB Camp Pendleton Alternative Mitigation Sites

Habitat restoration/creation activities in the MCB Camp Pendleton alternative mitigation sites would potentially displace wildlife from the sites, but such impact would be temporary. Any mitigation activities would only occur outside the migratory bird breeding season (15 February to 31 August). There would be no direct impacts to the SMR channel, so direct impacts to fish and aquatic wildlife would not be significant. Overall, habitat restoration/creation in the MCB Camp Pendleton alternative mitigation sites would increase the habitat functions and values for wildlife. Therefore, the Proposed Action would have no significant impacts on wildlife.

Special Status Species

MCAS Camp Pendleton Project Area

Arroyo Toad. Under the Proposed Action, 25.29 ac (10.23 ha) of ARTO riparian aestivation/movement habitat would transition to ARTO grassland aestivation/movement habitat. MCAS Camp Pendleton does not have ARTO breeding habitat and thus no loss would occur.

The project area is relatively small and peripheral to important ARTO breeding areas along the SMR corridor. The SMR corridor would continue to support high quality riparian habitat for ARTO up- and downstream of the project area. Additionally, ARTO would continue to utilize high quality riparian woodland habitat that occurs in the northern portion of MCAS Camp Pendleton. CMs would be implemented (refer to Table 3.0-3) to reduce potential impacts to ARTO, and mitigation for direct impacts to 25.29 ac (10.23 ha) of riparian aestivation/movement habitat would occur in a manner consistent with the Riparian BO and as determined through Section 7 consultation with the USFWS, either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat in either of the two MCB Camp Pendleton alternative mitigation sites.

ARTO have the potential to occur in the project area during vegetation removal activities. During vegetation clearing and maintenance, ARTO that reside in or attempt to move through the project area would be at risk of injury or mortality from foot and vehicle traffic and vegetation clearing activities. ARTO behavior (foraging and movement to and from riparian and adjacent aestivation habitats) may also be disrupted. To minimize risks to ARTO potentially occurring within the project area, CMs listed in Table 3.0-3 would be implemented. CMs include the installation of temporary silt fencing, conducting pre-activity ARTO surveys of the work areas, and biological monitoring by a qualified biologist during vegetation removal/maintenance activities. If an ARTO is observed within the project area, all activities would stop until the qualified biologist can capture and translocate the ARTO to a safe area.

The Proposed Action may affect and is likely to adversely affect ARTO due to transition of 25.29 ac (10.23 ha) of ARTO aestivation/movement habitat from riparian to grassland. A relatively small but unquantifiable number of ARTOs are estimated to be affected within the 25.29 ac (10.23 ha) of suitable habitat that would be impacted by the Proposed Action. These impacts represent a small fraction of the available ARTO habitat

within the affected populations. In addition, permanent impacts to ARTO habitat would be mitigated for in a manner consistent with the Riparian BO and as determined through Section 7 consultation with the USFWS, either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat at either of the two alternative mitigation sites on MCB Camp Pendleton. Therefore, the Proposed Action would have no significant impacts on ARTO in the project area.

Least Bell's Vireo. Under the Proposed Action, 25.29 ac (10.23 ha) of LBVI breeding habitat would transition to grassland habitat. No temporary impacts to LBVI habitat would occur. The project area is relatively small and peripheral to important LBVI breeding areas along the SMR corridor. The SMR corridor would continue to support high quality riparian breeding habitat for LBVI up- and downstream of the project area. Additionally, LBVI would continue to utilize high quality riparian woodland habitat that occurs in the northern portion of MCAS Camp Pendleton. CMs would be implemented (refer to Table 3.0-3) to reduce potential impacts to LBVI, and mitigation for direct impacts to 25.29 ac (10.23 ha) of breeding habitat would occur in a manner consistent with the Riparian BO and as determined through Section 7 consultation with the USFWS, either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat in either of the two alternative mitigation sites on MCB Camp Pendleton.

Clearing of riparian vegetation in the project area would take place between 1 September and 14 February, outside of the LBVI breeding season (15 March to 31 August). Therefore, individuals would not be affected by temporary noise and visual impacts associated with vegetation clearance and/or maintenance. Using 2018 LBVI territory data (Feree and Clark 2018), approximately eight LBVI territories in the project area could be directly impacted through transition of 25.29 ac (10.23 ha) of riparian habitat to grassland habitat. The SMR corridor has ample high quality breeding habitat, and LBVI individuals that occur in the vicinity of MCAS Camp Pendleton would continue to utilize riparian habitats along the SMR corridor. In addition, high quality riparian woodland habitat in the northern portion of MCAS Camp Pendleton would continue to provide suitable LBVI breeding habitat.

The Proposed Action may affect and is likely to adversely affect LBVI due to the transition of 25.29 ac (10.23 ha) of LBVI breeding habitat from riparian to grassland. LBVI would not experience any direct impacts associated with vegetation removal activities, as such activities would occur outside of the species' breeding season when individuals are not present. Although permanent impacts to habitat would be mitigated for either through purchase of off-Station credits at a USFWS-approved conservation bank or restoration/creation of habitat at either of the two alternative mitigation sites on MCB Camp Pendleton, initial vegetation transition could impact up to approximately eight LBVI territories (based on 2018 data, Feree and Clark 2018). Implementation of CMs in Table 3.0-3 is expected to reduce potential impacts to LBVI, and the Proposed Action is not expected to affect overall population numbers on MCAS Camp Pendleton. Therefore, the Proposed Action would have no significant impacts on LBVI in the project area.

Southwestern Willow Flycatcher. Under the Proposed Action, 25.29 ac (10.23 ha) of non-breeding, transitory/foraging riparian habitat would transition to grassland habitat (Table 3.1-1). No SWFL breeding habitat would be lost. Clearing and maintenance of vegetation in the project area would occur between 1 September and 14 February, outside of the SWFL breeding season (15 March to 31 August), when the species is not present. Mitigation for loss of riparian habitat would occur in a manner consistent with the Riparian BO and as determined through Section 7 consultation with the USFWS, either through purchase of off-Station credits at a USFWS-approved conservation bank or through restoration/creation of habitat in either of the two alternative mitigation sites on MCB Camp Pendleton.

CMs in Table 3.0-3 would require seasonal avoidance to avoid direct impacts to SWFL individuals. Additionally, no SWFL nesting habitat would be impacted in the project area because no SWFL breeding habitat exists on MCAS Camp Pendleton. As project activities would occur outside of the species' migratory/breeding window, temporary effects from project activities (noise and visual disturbance) are not expected to impact the SWFL. It is expected that SWFL would continue to utilize high quality riparian woodland habitat on the river side of the levee. Therefore, the Proposed Action would have no significant impacts on SWFL in the project area.

MCB Camp Pendleton Alternative Mitigation Sites

Arroyo Toad. ARTO have the potential to occur in the MCB Camp Pendleton alternative mitigation sites during any mitigation activities. To minimize risks to ARTO potentially occurring within the MCB Camp Pendleton alternative mitigation sites, CMs listed in Table 3.0-3 would be implemented. CMs include the installation of temporary silt fencing, conducting pre-activity ARTO surveys of the work areas, and biological monitoring by a qualified biologist during any mitigation activities. If an ARTO is observed within the MCB Camp Pendleton alternative mitigation sites, all activities would stop until the qualified biologist can capture and translocate the ARTO to a safe area.

The potential exists for individual ARTO to be injured or killed during mitigation activities. The potential for direct harm to individuals within the MCB Camp Pendleton alternative mitigation sites is highly unlikely; however, if any incidental take did occur it would not result in impacts at the population level. Therefore, any mitigation activities associated with the Proposed Action would have no significant impacts on ARTO.

Coastal California Gnatcatcher. No coastal sage scrub habitat would be impacted under the Proposed Action. Additionally, there are no historic records of CAGN occurrence or breeding in the MCB Camp Pendleton alternative mitigation sites.

Noise associated with potential habitat restoration/creation activities in MCB Camp Pendleton Alternative Mitigation Site 2 would be similar in nature to, and not rise above the levels of, the noise associated with normal traffic on Vandegrift Boulevard and training activities at MCB Camp Pendleton. Therefore, the potential for temporary noise impacts to individuals is considered negligible. Likewise, no direct permanent impacts to CAGN would occur.

No CAGN habitat would be impacted and the likelihood of an individual being impacted by noise associated with habitat restoration/creation activities is negligible. Therefore, the Proposed Action would have no significant impacts on CAGN.

Least Bell's Vireo. Any potential habitat restoration/creation activities in the MCB Camp Pendleton alternative mitigation sites would take place between 1 September and 14 February, outside of the LBVI breeding season (15 March to 31 August). Therefore, individuals would not be affected by temporary noise and visual impacts associated with any mitigation activities. In addition, implementation of CMs in Table 3.0-3 is expected to reduce potential impacts to LBVI, and any mitigation activities would impart more suitable breeding habitat for LBVI, by enhancing riparian habitat functions and values in the MCB Camp Pendleton alternative mitigation sites. Therefore, any mitigation activities associated with the Proposed Action would have no significant impacts on LBVI.

Southwestern Willow Flycatcher. Any habitat restoration/creation activities in the MCB Camp Pendleton alternative mitigation sites would take place between 1 September and 14 February, outside of the SWFL breeding season (15 March to 31 August). Therefore, individuals would not be affected by temporary noise and visual impacts associated with any mitigation activities. In addition, implementation of CMs in Table

3.0-3 is expected to reduce potential impacts to SWFL, and any mitigation activities would impart more suitable breeding habitat for SWFL by enhancing riparian habitat functions and values in the MCB Camp Pendleton alternative mitigation sites. Therefore, any mitigation activities associated with the Proposed Action would have no significant impacts on SWFL.

3.1.3.2 No-Action Alternative

Under the No-Action Alternative, vegetation would not be managed and maintained southwest of the MCAS Camp Pendleton runway as described under the Proposed Action. Existing conditions (as described in Section 3.1.2) would remain unchanged and no impacts to biological resources would occur.

3.2 CULTURAL RESOURCES

3.2.1 Definition of Resource

Cultural resources is an inclusive label that includes but is not limited to historic properties or traditional cultural properties and sacred sites valued by traditional communities (often, but not necessarily, Native American groups). Cultural resources are finite, nonrenewable resources, whose salient characteristics are easily diminished by physical disturbance; certain types of cultural resources also may be negatively affected by visual, auditory, and atmospheric intrusions.

Cultural resources are generally divided into three categories: archaeological resources, architectural resources, and traditional cultural resources:

- **Archaeological resources** – places where people changed the ground surface or left artifacts or other physical remains (e.g., arrowheads or bottles).
- **Architectural resources** – standing buildings, dams, canals, bridges, and other structures.
- **Traditional cultural resources** – these include traditional cultural properties, which are associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. Traditional cultural resources may also include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Compliance with Section 106 of the NHPA, which directs federal agencies to take into account the effect of a federal undertaking on historic properties, is outlined in the Advisory Council on Historic Preservation's regulations, *Protection of Historic Properties* (36 CFR Part 800). These regulations define historic properties as prehistoric and historic sites, buildings, structures, districts, or objects listed or eligible for listing in the National Register of Historic Places (NRHP), as well as artifacts, records, and remains related to such properties. A traditional cultural property can be defined generally as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community.

Once historic properties have been identified, they are evaluated for their eligibility for inclusion in the NRHP according to NRHP eligibility criteria, which are codified in 36 CFR 60.4. The Secretary of the Interior developed the NRHP Criteria for Evaluation to assist in the evaluation of properties eligible for inclusion in the NRHP. The National Park Service (NPS) published guidance for applying the criteria in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (or *Bulletin 15*) (NPS 2002). To qualify for the NRHP, a property must either be a building, site, district, structure, or object

as described above and have significance and retain historic integrity. To be listed in, or considered eligible for listing in the NRHP, a cultural resource must meet at least one of the following (NPS 2002):

- Criterion A:** be associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B:** be associated with the lives of persons significant in our past; or
- Criterion C:** embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D:** yield or may be likely to yield information important in prehistory or history.

Section 110 of the NHPA requires federal agencies to establish programs to locate, evaluate, and nominate all properties that qualify for inclusion in the NRHP.

As of September 2017, 100% of the surveyable land at MCAS Camp Pendleton and MCB Camp Pendleton has been adequately surveyed. According to the latest Integrated Cultural Resources Management Plan (MCB Camp Pendleton 2017), 548 cultural resource management studies have been documented as being completed at MCAS Camp Pendleton and MCB Camp Pendleton. These studies include cultural resource condition assessment; data recovery; data recovery/monitoring/testing; evaluation; excavation; general reference; inventory; monitoring; monitoring/data recovery; monitoring/evaluation; monitoring/testing; monitoring/testing/research design; research design; study areas; survey; survey/research design; survey/testing; testing; testing/evaluation; thesis; and others.

3.2.2 Affected Environment

The area of potential effect (APE) for the Proposed Action includes the project area on MCAS Camp Pendleton and the two MCB Camp Pendleton alternative mitigation sites. No archaeological sites or isolated finds occur within the project area on MCAS Camp Pendleton. Therefore, the analysis presented below is specific to the MCB Camp Pendleton alternative mitigation sites. A total of 12 archaeological sites and 3 isolated finds are located within the APE (Table 3.2-1) (MCB Camp Pendleton 2019).

Three archaeological sites are located within MCB Camp Pendleton Alternative Mitigation Site 1 portion of the APE, including two prehistoric artifact scatters/middens and the Santa Fe Railroad (see Table 3.2-1). One of the artifact scatters (CA-SDI-12628) was recommended eligible for listing in the NRHP and the California SHPO concurred; while the other artifact scatter (CA-SDI-15126) was recommended not eligible. Per the 2017 Integrated Cultural Resources Management Plan, the California SHPO has not concurred on this recommendation (MCB Camp Pendleton 2017). The site boundary for CA-SDI-12628 was revised in 2018; however, this site is still located within the APE despite the boundary change (NAVFAC Southwest 2019; MCB Camp Pendleton 2019).

Table 3.2-1. Sites and Isolates Located Within the APE

Site/Isolate Number	Site Type	Site Size (meters)	Description	NRHP Status*
Sites Located within MCB Camp Pendleton Alternative Mitigation Site 1				
CA-SDI-12628	Prehistoric	100 x 100	Late Prehistoric large habitation site with flaked and ground stone tools, debitage, pottery, beads, vertebrate remains, marine shell, and cremated human remains.	Eligible *
CA-SDI-14005H_A	Historic	Linear	Santa Fe Railroad	Eligible*
CA-SDI-15126	Prehistoric	30 x 10	Artifact scatter	Ineligible
Sites Located within MCB Camp Pendleton Alternative Mitigation Site 2				
CA-SDI-4416	Prehistoric	110 x 80	Shell and artifact deposit	Eligible*
CA-SDI-4417	Prehistoric	100 x 50	Artifact midden with shell	Eligible*
CA-SDI-13935	Prehistoric	40 x 15	Shell scatter	Ineligible*
CA-SDI-14005H_A	Historic	Linear	Santa Fe Railroad	Eligible*
CA-SDI-14006H_A	Historic	Linear	Road/trail remains of the El Camino Real	Eligible *
CA-SDI-14007	Prehistoric	Unknown	Shell scatter	Eligible*
CA-SDI-14751	Prehistoric	840 x 150	Artifact scatter with shell	Eligible*
CA-SDI-14752	Prehistoric	30 x 6	Late Prehistoric Period camp site with marine shell, debitage, mammal bone, and Tizon Brown Ware ceramics.	Eligible
CA-SDI-20617	Prehistoric	70 x 17	Shell and artifact scatter	Unevaluated
CA-SDI-21233	Prehistoric	31 x 15	Shell scatter	Unevaluated
Isolates Located within MCB Camp Pendleton Alternative Mitigation Site 2				
ISO-113-10	Prehistoric	0.5	Marine shell fragment	Ineligible
ISO-113-12	Historic	0.5	Railroad spike	Ineligible
ISO-113-18	Historic	0.5	Weathered brick fragment	Ineligible

Note: *California SHPO concurred on the NRHP recommendation per the Integrated Cultural Resources Management Plan (MCB Camp Pendleton 2017).

Source: MCB Camp Pendleton 2019.

Ten archaeological sites are located within MCB Camp Pendleton Alternative Mitigation Site 2 portion of the APE, including eight prehistoric sites and two historic sites (see Table 3.2-1). The prehistoric sites consist of artifact and shell scatters. Four of the prehistoric sites were recommended eligible (CA-SDI-4416, CA-SDI-4417, CA-SDI-14007, and CA-SDI-14751) for listing in the NRHP and one was recommended not eligible (CA-SDI-13935). The California SHPO concurred with these recommendations (MCB Camp Pendleton 2017). Two of the prehistoric sites have been unevaluated (CA-SDI-20617 and CA-SDI-21233) for listing in the NRHP. One additional prehistoric site (CA-SDI-14752) was recommended eligible for listing in the NRHP; however, the SHPO has not concurred on this recommendation (MCB Camp Pendleton 2017). The two historic sites include the Santa Fe Railroad (CA-SDI-14005H) and a historic road/trail (CA-SDI-14006H_A). The historic road/trail was recommended eligible for listing in the NRHP and the California SHPO concurred (MCB Camp Pendleton 2017).

Three isolated finds, all considered not eligible for listing in the NRHP, are located within Alternative Mitigation Site 2 (MCB Camp Pendleton 2019). Two of the isolated finds are historic (ISO-113-12 and ISO-113-18) and one is prehistoric (ISO-113-10) (see Table 3.2-1).

There are no known traditional cultural properties or architectural resources located within the APE (MCB Camp Pendleton 2019).

3.2.3 Environmental Consequences

Cultural resources are subject to review under federal laws and regulations. Section 106 of the 1966 NHPA empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the NRHP. Once cultural resources have been identified, their significance is assessed relative to significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for or listed in the NRHP) are protected under the NHPA.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may occur by:

1. physically altering, damaging, or destroying all or part of a resource
2. introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting
3. neglecting the resource to the extent that it deteriorates or is destroyed

Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utilities services, and other support functions necessary to accommodate population growth. These activities and subsequent use of facilities can disturb or destroy cultural resources.

3.2.3.1 Proposed Action

As stated in Section 3.2.2, no archaeological sites or isolates occur in the project area on MCAS Camp Pendleton. Therefore, the Proposed Action would have no impact on cultural resources in the MCAS Camp Pendleton project area.

Implementation of the Proposed Action would have the potential to affect eight NRHP-eligible archaeological sites, two ineligible sites, and two unevaluated sites (considered eligible for purposes of this project) within the alternative mitigation sites on MCB Camp Pendleton. Three isolates also have the potential to be affected, however, these are considered ineligible to the NRHP. Therefore, no further cultural resource management is needed regarding the isolated finds or sites that are ineligible to the NRHP.

A Programmatic Agreement (PA) between the USMC, Advisory Council on Historic Preservation, and California SHPO details the process for compliance with Section 106 of the NHPA for undertakings on MCB Camp Pendleton (USMC et al. 2014). The PA streamlines the Section 106 process of the NHPA and eliminates consultation with the SHPO and Invited Signatories on a case-by-case basis when the following occurs:

- Historic properties that are listed in or eligible for the NRHP are present within an APE but will not be adversely affected;
- Historic properties, and/or unevaluated properties will be treated as if they were eligible for the NRHP, are within the APE but adverse effects will be completely avoided by implementing management measures;
- If the USMC determines that historic properties are present within an undertaking's APE and would be affected by an undertaking, and the Standard Resource Protection Measures can or will be implemented (USMC et al. 2014).

Per the MCB Camp Pendleton PA (USMC et al. 2014), the following Standard Resource Protection Measures would be followed to avoid adverse effects to cultural resources in the MCB Camp Pendleton alternative mitigation sites:

- The proposed activities must avoid direct and indirect effects to historic properties. If archaeological sites are eligible for the NRHP under 36 CFR 60.4(d), then the site boundary must be demarcated and excluded from the proposed undertaking. All other eligible historic properties for listing in the NRHP under other criteria, must be physically demarcated and avoided during the implementation of an undertaking.
- Buffer zones may be established to ensure added protection where setting contributes to the property's eligibility under 36 CFR 60.4. The size of the buffer zone will be determined by the MCB Camp Pendleton archaeologist on a case-by-case basis.
- Monitoring of eligible historic properties will occur to enhance the effectiveness of the protection measures described above.

Alternative Mitigation Sites 1 and 2 are located on MCB Camp Pendleton, therefore, the cultural resources located within these two areas would be managed per the PA (USMC et al. 2014).

The Proposed Action would avoid the eight NRHP-eligible and two unevaluated archaeological sites during habitat restoration/creation within the MCB Camp Pendleton alternative mitigation sites. Per the PA, an archaeological monitor would be present during all ground disturbing activities to ensure the identification, recordation, and investigation of any previously unidentified components of these sites occurs. The methodology for this monitoring would be presented in a Monitoring and Discovery Plan that would ensure the identification, avoidance, and/or mitigation procedures of potential effects to historic properties during ground disturbing construction activities. After monitoring activities take place an Archaeological Monitoring Compliance Report would be prepared.

The Proposed Action would not impact cultural resources, as the conditions of the PAs would be implemented. There would be no adverse effect to historic properties. Therefore, implementation of the Proposed Action would result in no significant impacts to cultural resources.

3.2.3.2 No-Action Alternative

Under the No-Action Alternative, vegetation would not be managed and maintained southwest of the MCAS Camp Pendleton runway as described under the Proposed Action. Existing conditions (as described in Section 3.2.2) would remain unchanged and no impacts to cultural resources would occur.

3.3 PUBLIC HEALTH AND SAFETY

3.3.1 Definition of Resource

This section analyzes activities or operations that have the potential to affect public health and safety. A safe environment is one where the risk of death, serious bodily injury or illness, or property damage is reduced or eliminated. Stressors in the environment that affect human health and safety can be identified and then minimized or eliminated to acceptable levels to prevent potential impacts to the general public. The primary safety issues associated with the Proposed Action include those inherent with vegetation clearance and management (including habitat restoration/creation activities in the MCB Camp Pendleton alternative mitigation sites), and the potential risk to valuable USMC assets (e.g., personnel, facilities, planes/helicopters) on MCAS Camp Pendleton and MCB Camp Pendleton. For worker safety, the boundary of the immediate work area defines the region of influence (ROI). For public safety, a much larger area must be considered. This area varies depending on the nature of the operation and may extend for miles beyond the source of the hazard.

3.3.2 Affected Environment

Section 1.3.1 describes the DoD and DoN aviation safety regulations (e.g., NAVFAC P-971, Appendix E of NAVFAC P-80.3, and UFC 3-260-01) in general, while Section 1.3.2 provides the safety criteria discussed in these regulations.

The AOA Report (MCAS Camp Pendleton and NAVFAC 2011) identifies obstacles within and around MCAS Camp Pendleton that violate DoD and DoN airfield safety regulations (i.e., obstacles that penetrate the imaginary surfaces). A December 2013 Aviation Facilities Safety Survey reconfirmed the obstructions identified in the AOA Report still exist (Naval Safety Center 2013).

Vegetation maintenance, including vegetation clearance and tree removal, and habitat restoration are regularly performed using standard operating procedures at both MCAS and MCB Camp Pendleton. This maintenance uses methods and equipment similar or identical to those included in the Proposed Action

3.3.3 Environmental Consequences

The health and safety analysis addresses issues related to the direct safety of aviators and ground crew during MCAS Camp Pendleton air operations, as well as the health and well-being of military personnel and civilians on or in the vicinity of MCAS Camp Pendleton and MCB Camp Pendleton.

3.3.3.1 Proposed Action

Under the Proposed Action, the DoN and USMC would manage and maintain vegetation southwest of the MCAS Camp Pendleton runway to conform to DoD and DoN airfield safety and planning regulations (e.g., NAVFAC P-971, Appendix E of NAVFAC P-80.3, and UFC 3-260-01), thereby reducing the risk to flight safety posed by the height of the current riparian vegetation.

Vegetation clearance and maintenance are regularly performed on MCAS and MCB Camp Pendleton, using standard equipment (chainsaws, wood chippers, small bulldozers, etc.). Habitat restoration is also regularly performed on MCAS and MCB Camp Pendleton, most of which involves seeding, planting by hand, and non-native plant removal. Because vegetation management and restoration activities are regularly performed using standard operating procedures at both MCAS and MCB Camp Pendleton, and all work associated with the Proposed Action would be performed in accordance with a pre-approved Accident Prevention Plan/Health and Safety Plan, the potential for impacts to the health and safety of personnel performing habitat transition, maintenance, and any mitigation work would be greatly minimized. As such, implementation of the Proposed Action would result in a beneficial, but less than significant, impact to public health and safety.

3.3.3.2 No-Action Alternative

Under the No-Action Alternative, vegetation would not be managed and maintained southwest of the MCAS Camp Pendleton runway as described under the Proposed Action. As such, the existing conditions (as described in Section 3.3.2) would remain unchanged, vegetation southwest of the MCAS Camp Pendleton runway would continue to penetrate the Primary Surface, Clear Zones, and Transition Zones, and MCAS Camp Pendleton would continue to be out of conformance with airfield safety regulations (refer to Section 1.3.1).

MCAS Camp Pendleton is a Class A airfield which supports “small, light aircraft.” MCAS Camp Pendleton predominantly supports helicopter operations, with fixed-wing operations occurring less than two times per day on average. The associated risk of being out of conformance with airfield safety regulations (refer to

Section 1.3.1) is greater for fixed-wing aircraft than for rotorcraft since rotorcraft can quickly maneuver back to the airfield or other suitable landing zone away from obstructed imaginary surface areas. Nonetheless, the AOA Report (MCAS Camp Pendleton and NAVFAC 2011) identified obstacles within and around MCAS Camp Pendleton that violated DoD and DoN airfield safety regulations, and aircraft operations have continued to be executed at MCAS Camp Pendleton since then. Therefore, under the No-Action Alternative, aircraft operations and personnel would continue to be put at risk. As such, the No-Action Alternative would result in an adverse impact to public health and safety.

CHAPTER 4

CUMULATIVE IMPACT ANALYSIS

4.1 INTRODUCTION

CEQ regulations implementing NEPA require that the cumulative impacts of a Proposed Action be assessed (40 CFR Parts 1500-1508). A cumulative impact is defined as the following:

“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 CFR 1508.7)

Cumulative effects are most likely to arise when a relationship exists between the Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated.

CEQ’s guidance for considering cumulative effects states that NEPA documents “should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant” (CEQ 1997). The first step in assessing cumulative effects; therefore, involves identifying and defining the scope of other actions and their interrelationship with the Proposed Action. The scope of the cumulative effects analysis involves both the geographic extent of the effects and the timeframe in which the effects could be expected to occur. The scope must consider other projects that coincide with the location and timing of the Proposed Action and other actions, and the duration of potential effects on the environment. Section 4.2 identifies the projects considered in the cumulative analysis. Section 4.3 outlines the methodology used for this cumulative impact analysis. Section 4.4 provides an analysis of potential cumulative impacts for each of the environmental resources discussed in this EA.

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

This section identifies past, present, and reasonably foreseeable future actions not related to the Proposed Action that have the potential to cumulatively impact the resources in the affected environment for MCAS Camp Pendleton, MCB Camp Pendleton, and the associated regionally affected area. The geographic distribution, intensity, duration, and historical effects of similar activities were considered when determining whether a particular activity may contribute cumulatively to the impacts of the Proposed Action on the resource areas identified in this EA.

4.2.1 Past Actions

Past actions relevant to the analysis of cumulative impacts at MCAS and MCB Camp Pendleton have been identified and are described below.

4.2.1.1 Basing of the MV-22 Osprey

This action involved the basing of the MV-22 Osprey tilt-rotor aircraft at MCAS Camp Pendleton. This program modernized the medium lift fleet, provided support for I Marine Expeditionary Force, and improved operational capabilities for the Third and Fourth Marine Air Craft Wing squadrons. An EIS was prepared for the MV-22 West Coast Program and a ROD was signed November 2009.

4.2.1.2 Construction of Maintenance Hangar (P-111)

A maintenance hangar (P-111) was constructed at MCAS Camp Pendleton. The hangar covers a total area of approximately 38,000 square ft (3,530 square m) of space and includes offices, engineering shops, operational spaces, locker rooms, a tool room, and a hangar bay. The construction was completed in April of 2014.

4.2.1.3 Grow the Force

The Marine Corps 202k Plus Up, also known as “Grow the Force” would include an increase of approximately 3,000 personnel at MCB Camp Pendleton and the placement and use of temporary and permanent facilities. At present, the Grow the Force project includes approximately 60 construction projects at MCB Camp Pendleton. An EA evaluating the potential impacts of 39 projects has been completed and the Finding of No Significant Impact (FONSI) signed.

4.2.1.4 Basewide Utilities Infrastructure Improvements Project

The USMC upgraded and improved the basewide water, wastewater, electrical, communication, and natural gas systems at MCB Camp Pendleton. The action allows the base to efficiently meet its mission and to provide (1) new or upgraded, reliable, and compliant utility systems to support military training and operations throughout MCB Camp Pendleton and quality of life services; and (2) system redundancy that would enable the delivery of utility services during periods of scheduled, unscheduled, and emergency outages. Specifically, the project included the construction and operation, including maintenance, of utility infrastructure upgrades, expansions, and improvements to water, wastewater, electrical, communication, and natural gas systems within MCB Camp Pendleton. These improvements include a new tertiary wastewater treatment plant and associated facilities serving the northern portion of MCB Camp Pendleton; upgrades to the base 69-kilovolt electrical distribution systems and associated facilities, including replacement of existing 4.16 kilovolts and 12 kilovolts electrical distribution systems; upgrades to the basewide communication systems; upgrades to the basewide natural gas systems; and new water and wastewater facilities and road improvements to Range 130. The Basewide Utilities Infrastructure EIS prepared for the action identified no significant environmental impacts and the Record of Decision (ROD) was signed on 23 September 2010.

4.2.1.5 New Naval Hospital

A new Naval Hospital to replace the existing facility in the 27 Area has been constructed in the 20 Area, just north of the MCB Camp Pendleton Main Gate. The hospital is a four-story, 500,000 square ft. (46,000 square m) facility that provides emergency services, in-patient services, out-patient clinics, ancillary services, surgical services, logistics, and meets other medical needs. An EA for this project was completed, and a FONSI was signed in January 2010. The new hospital was completed in January of 2014.

4.2.1.6 New Main Exchange and Service Mall

A new Main Exchange and Service Mall was completed in 2013 in the 20 Area, just north of the MCB Camp Pendleton Main Gate (north of the new Naval Hospital). The Exchange and Service Mall includes a large one story “big box” retail building and smaller buildings to support the following potential services: a military clothing store; service vendors; a restaurant; a credit union; a warehouse, administration and support; an outdoor lawn and garden shop; and surface parking for approximately 580 vehicles. An EA for this project was completed and a FONSI was signed in January 2010.

4.2.1.7 Advanced Water Treatment Facility/Utility Corridor Project (P-113)

The purpose of the P-113 project is the reduction of (1) total dissolved solids to maximize wastewater reuse options on-Base, and (2) total organic carbon and total trihalomethanes to comply with the Federal Stage 2 Disinfectants and Disinfection Byproducts Rule for total trihalomethanes in drinking water. The proposed P-113 project is also needed to ensure MCB Camp Pendleton compliance with drinking water and wastewater standards for total dissolved solids. Under this project, the USMC upgraded the existing Haybarn Canyon Drinking Water IM-2 through the addition of modular microfiltration, granular activated carbon, and reverse osmosis components. Disinfection and pH adjustment are also applied to the treated water stream. Construction of the P-113 project began in 2011 and was completed in 2013.

4.2.1.8 MCB Camp Pendleton Military Family Housing Public-Private Venture (PPV-7)

A new Public-Private Venture Military Family Housing (PPV-7) development was completed on 132 acres (53.48 ha) to the west of the existing Stuart Mesa Housing complex. The project includes the construction, operation, and maintenance of 250 military family housing units and supporting infrastructure. Paving and site improvements include paved roads and parking; curbs and gutters; sidewalks; landscaping and irrigation; and pedestrian and bicycling features. Access to the new housing area is provided via a new two-lane road that extends from Cocklebur Canyon Road to Mitchel Boulevard. The project was completed in 2017.

4.2.1.9 Basewide Water Infrastructure Project

The USMC is constructing water infrastructure improvements at MCB Camp Pendleton. The project allows MCB Camp Pendleton to efficiently meet its mission by providing improved and compliant drinking water treatment capabilities, capacity, and redundancy, and by providing more efficient water delivery in the northern region of MCB Camp Pendleton and throughout the Base during periods of scheduled, unscheduled, and emergency system interruption. The project accomplishes this purpose through two separate projects designed to meet current and future needs, specifically, the construction, operation, and maintenance of potable water infrastructure upgrades. These improvements include a Northern Advanced Water Treatment plant and associated facilities, including an effluent discharge system, and connection of the MCB Camp Pendleton northern and southern water systems. The Basewide Water Infrastructure EIS prepared for the action identified significant impacts to biological resources and cultural resources; however, MCB Camp Pendleton would avoid or minimize impacts on these resources to the maximum extent practicable during project design and construction. The ROD was signed on 25 September 2012. This project was scheduled for completion in 2017.

4.2.2 Present Actions

The following present actions are relevant to the analysis of cumulative impacts at MCAS and MCB Camp Pendleton.

4.2.2.1 Santa Margarita River Conjunctive Use Project

This project addresses the proposed conjunctive use of surface and groundwater in the Lower SMR Basin. The project would perfect the water rights permits that were assigned to the Bureau of Reclamation in 1974 (Permits 15000, 8511, and 11357), provide a physical solution to long-standing litigation, reduce dependence on imported water (primarily for the Fallbrook Public Utility District), maintain watershed resources, and improve water supply reliability by managing the yield of the Lower SMR Basin. The Department of the Interior, Bureau of Reclamation, the Navy, MCB Camp Pendleton, and Fallbrook Public Utility District have prepared an Environmental Impact Report/EIS for this proposed project, which was completed in September of 2016.

4.2.3 Future Actions

The following future actions are relevant to the analysis of cumulative impacts at MCAS and MCB Camp Pendleton.

4.2.3.1 Levee Repair and Maintenance at Marine Corps Air Station Camp Pendleton

This project would authorize the repair and maintenance of the flood control structure (levee, floodwall, and stormwater management system) at MCAS Camp Pendleton and MCB Camp Pendleton. The Proposed Action would include placing launchable riprap and an adjacent gravel access path on top of the existing riprap revetment, filling and sealing cracks in the MCAS Camp Pendleton segment of the levee; removing vegetation on the levee and within the 15-ft (5-m) vegetation clear zone on both sides of the levee and floodwall or launchable riprap; and removing or filling the toe drain. Ongoing inspections and maintenance would involve vegetation clearing and replacement of lost material after storm events. An EA is currently being prepared for this project.

4.2.3.2 Instrument Landing System at Marine Corps Air Station Camp Pendleton

The USMC plans to install an Instrument Landing System southwest of the MCAS Camp Pendleton runway. A Categorical Exclusion is expected to be utilized for this project.

4.2.3.3 Basilone Road Realignment

This project would include the construction of up to 1.67 miles (2.69 km) of roadway on a section of Basilone Road between Horno Canyon Road and the 43 Area on a new alignment. The project would include clearing and grubbing, demolition of existing pavements, earthwork (cut and fill), grading, drainage structures, full depth pavement (base material and asphalt concrete), curb, erosion control, hydroseeding, guard rails, signage and pavement marking, traffic control during construction, and utilities relocation. The existing road segment would be abandoned-in-place and used as an access route for existing utilities and potentially for training or other Base needs. Design features (e.g., gates at either end of the abandoned road segment) would control access. In addition, two paved access roads totaling approximately 660 ft (201 m) would be constructed to provide access to the Las Pulgas Landfill and Ammunition Supply Point. The final Supplemental EA was submitted in January of 2019. Construction is currently anticipated to begin in calendar year 2019 and last for up to approximately 745 days.

4.3 METHODOLOGY

4.3.1 Geographic Scope of the Cumulative Effects

For this analysis, a geographic scope, or ROI, for each cumulative effects issue was established. The ROI is generally based on the natural boundaries of the resources affected, rather than jurisdictional boundaries. The geographic scope may be different for each cumulative effects issue. The geographic scope of cumulative effects often extends beyond the scope of the direct effects, but not beyond the scope of the direct and indirect effects of the Proposed Action. However, if the Proposed Action is determined to have no direct or indirect effects on a resource, no future cumulative effects analysis is necessary.

4.3.2 Time Frame of the Cumulative Effects Analysis

A time frame for each issue related to cumulative effects has been determined. The time frame is defined as the long-term and short-term duration of the effects anticipated. Long-term can be as the longest lasting effect. Time frames, like geographic scope, can vary by resource. Each project in a region has its own implementation schedule, which may or may not coincide or overlap with the schedule for implementing the Proposed Action. This is a consideration for short-term impacts from the Proposed Action. However, to be conservative, the cumulative analysis assumes that all projects in the cumulative scenario are built and operating during the operating lifetime of the Proposed Action.

Past actions are projects that have been approved and/or permitted, and that have either very recently completed construction/implementation or have yet to complete construction/be implemented. Present actions are actions that are ongoing at the time of the analysis. Reasonably foreseeable future actions are those for which there are existing decisions, funding, or formal proposals, or which are highly probable based on known opportunities or trends. However, these are limited to within the designated geographic scope and time frame. Reasonably foreseeable future actions are not limited to those that are approved for funding. However, this analysis does not speculate about future actions that are merely possible, but not highly probable based on information available at the time of this analysis.

For this cumulative effects analysis, the time frame considered for cumulatively considerable projects includes projects recently approved or completed that are not yet addressed as part of the existing conditions of the area, projects under construction, and projects that are in the environmental review or planning process and for which enough information is available to discern their potential impacts. Projects for which no or insufficient information is known, or for which substantial uncertainty exists regarding the project, are considered speculative and are not evaluated as part of this analysis.

4.4 CUMULATIVE IMPACT ANALYSIS

This section addresses the potential cumulative impacts of the Proposed Action in conjunction with the aforementioned cumulative projects. These projects represent past, present, and reasonably foreseeable actions with the potential for cumulative impacts when considered in conjunction with the potential impacts from the Proposed Action.

4.4.1 Biological Resources

Cumulative impacts to biological resources are not likely to occur with the implementation of the Proposed Action. All actions undertaken by MCAS and MCB Camp Pendleton are required to adhere to the ESA, the MBTA, as well as CWA Section 404/401 permit requirements where applicable. Section 7 ESA consultation is being or has been performed where required for each project, and cumulative impacts to federally listed species are addressed as part of that process and documented in appropriate BOs issued by

the USFWS. Where appropriate, habitat that is suitable for federally listed species is mitigated for to minimize the likelihood of cumulative habitat loss for listed species. Under CWA Section 404/401, permitted impacts to wetland acreage and functions and water quality must be mitigated to avoid the situation where small incremental losses or degradation become significant. The impacts of the Proposed Action and those of other projects would be avoided, minimized, and/or compensated to the point that significant cumulative impacts to biological resources would not occur. Therefore, when added to the impacts from other potentially cumulative actions, implementation of the Proposed Action would result in no significant cumulative impacts to biological resources.

4.4.2 Cultural Resources

As described in Section 3.2.3.1, no cultural resources occur in the MCAS Camp Pendleton project area. Therefore, the analysis of cumulative impacts to cultural resources is specific to the two alternative mitigation sites on MCB Camp Pendleton. The PA for MCB Camp Pendleton (USMC et al. 2014) addresses potential impacts to cultural resources and applies to all ground disturbing activities, including the Proposed Action in the MCB Camp Pendleton alternative mitigation sites. With the avoidance measures prescribed in the PA, no impacts to cultural resources would occur. Similarly, as the PA has likewise guided past, present, and future projects, those projects are also unlikely to significantly impact cultural resources. Therefore, when added to the impacts from potential cumulative actions, implementation of the Proposed Action would not result in significant cumulative impacts to cultural resources.

4.4.3 Public Health and Safety

As described in Section 3.3.3.1, under the Proposed Action, the DoN and USMC would manage and maintain vegetation southwest of the MCAS Camp Pendleton runway to conform to DoD and DoN airfield safety and planning regulations (e.g., NAVFAC P-971, Appendix E of NAVFAC P-80.3, and UFC 3-260-01), thereby reducing the risk to aviators, ground crew personnel, and other military personnel and civilians, thus resulting in a beneficial impact. Vegetation management and/or mitigation activities associated with the Proposed Action would not result in significant impacts to the health and safety of military and civilian personnel on MCAS Camp Pendleton and MCB Camp Pendleton. All the other cumulative projects listed above would be required to comply with the same regulatory requirements to protect construction workers and the public and would employ similar BMPs to minimize risks to workers during construction. Once vegetation transition has occurred, the Proposed Action would result in improved safety and reduced risk to aircraft and flight personnel. Therefore, when considered cumulatively with the other projects, implementation of the Proposed Action would result in no significant cumulative impact to public health and safety.

CHAPTER 5 OTHER NATIONAL ENVIRONMENTAL POLICY ACT CONSIDERATIONS

5.1 POSSIBLE CONFLICTS BETWEEN THE ACTION AND THE OBJECTIVES OF FEDERAL, REGIONAL, STATE, AND LOCAL PLANS, POLICIES, AND CONTROLS

An assessment of the Proposed Action indicates that the Proposed Action would not conflict with the objectives of other regulations. A summary of regulatory compliance status is presented in Table 5-1.

Table 5-1. Summary of Applicable Environmental Regulations and Regulatory Compliance

Plans, Policies, and Controls	Responsible Agency	Compliance Status
NEPA	USMC and DoN	This EA has been prepared in accordance with NEPA, CEQ regulations implementing NEPA, and DoN NEPA procedures.
CAA, CAAQS, San Diego Air Pollution Control District Rules and Regulations for Title V and non-Title V sources	USEPA and CARB	Under the Proposed Action, no significant impacts to air quality would occur. As such, a RONA for CAA conformity has been prepared (Appendix C).
EO 12898, <i>Environmental Justice</i>	USMC and DoN	Based on the analysis in this EA, the USMC and DoN conclude that the Proposed Action would not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.
EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i>	USMC and DoN	Based on the analysis in this EA, the USMC and DoN conclude that the Proposed Action would not result in environmental health risks and safety risks that may disproportionately affect children.
NHPA	SHPO	There are no cultural resources within the MCAS Camp Pendleton project area. NRHP-eligible sites in the MCB Camp Pendleton alternative mitigation sites would continue to be managed in accordance with the MCB Camp Pendleton PA (USMC et al. 2014).
CWA	USEPA, USACE, and California SWRCB	The Proposed Action would be implemented in compliance with the California Construction General Permit. Proposed activities would require preparation of a project-specific SWPPP and use of BMPs to limit potential erosion and runoff. If compensatory mitigation occurs on MCB Camp Pendleton, and it impacts waters of the U.S., MCAS Camp Pendleton would have to submit a Pre-Construction Notification to the USACE for Nationwide Permit 27.
Section 7 of the ESA	USFWS	The USFWS is reviewing the Biological Assessment prepared by MCAS Camp Pendleton.

Legend: BMPs = best management practices; CAA = Clean Air Act; CAAQS = California Ambient Air Quality Standards; CEQ = Council on Environmental Quality; CWA = Clean Water Act; DoN = Department of the Navy; EA = Environmental Assessment; EO = Executive Order; ESA = Endangered Species Act; MCAS = Marine Corps Air Station; MCB = Marine Corps Base; NEPA = National Environmental Policy Act; NHPA = National Historic Preservation Act; NRHP = National Register of Historic Places; PA = Programmatic Agreement; RONA = Record of Non-Applicability; SWPPP = Stormwater Pollution Prevention Plan; SWRCB = State Water Resources Control Board; USACE = U.S. Army Corps of Engineers; USEPA = U.S. Environmental Protection Agency; USFWS = U.S. Fish and Wildlife Service; USMC = U.S. Marine Corps.

5.2 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL OF VARIOUS ALTERNATIVES AND MITIGATION MEASURES CONSIDERED

Energy demands would primarily occur during the vegetation transition phase of the project. Activities associated with vegetation management would consume nonrenewable fossil fuel, largely in the form of diesel gasoline, for the operation of equipment. One of the primary opportunities for conservation of fuel is the regular maintenance of vehicles and equipment to maximize their fuel efficiency. All equipment would be in proper working order. Equipment would not be allowed to idle when not in service, as is required for minimizing air quality impacts. In addition, all equipment would be shut down when not in operation for any extended periods of time.

Maintenance activities would require a small number of vehicles. In addition to the conservation options described above, fuel consumption could be further reduced by using a fuel efficient vehicle fleet, and limiting the use of less efficient vehicles and equipment to when they are required by the situation.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires that environmental analysis include identification of "...any irreversible or irretrievable commitments of resources that would be involved if the proposed action is implemented." The term "resources" (both renewable and nonrenewable) means the natural and cultural resources committed to, or lost by, the action, as well as labor, funds, and materials committed to the action.

The permanent use and subsequent loss of nonrenewable resources, such as oil, natural gas, and iron ore, are considered irreversible because nonrenewable resources cannot be replenished by natural means. An action that causes a loss in the value of an affected resource, which cannot be restored (e.g., disturbance of a cultural site), is considered an irretrievable commitment of resources. Similarly, the consumption of a renewable resource that would be lost for a period of time is also considered an irretrievable commitment of resources. Renewable natural resources include water, lumber, and soil, all of which can be replenished by natural means within a reasonable timeframe. The Proposed Action would require the irretrievable commitments of both nonrenewable and renewable resources in the use of fuel, materials, and labor.

The commitment of energy resources to implement the Proposed Action is not anticipated to be excessive in terms of region-wide usage.

5.4 RELATIONSHIP BETWEEN SHORT-TERM ENVIRONMENTAL IMPACTS AND LONG-TERM PRODUCTIVITY

Short-term uses of the environment associated with the Proposed Action would include the transition of vegetation in the project area and any habitat restoration/creation activities in the MCB Camp Pendleton alternative mitigation sites. Project-related activities would temporarily increase air pollution emissions in the immediate vicinity of the affected area.

As discussed in Chapter 3, the Proposed Action would result in both short-term and long-term environmental effects. The Proposed Action is unlikely to result in the types of impacts that would reduce environmental productivity, have long-term impacts on sustainability, affect biodiversity, or narrow the range of long-term beneficial uses of the environment.

5.5 ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED AND ARE NOT AMENABLE TO MITIGATION

Implementation of the Proposed Action would not result in any adverse environmental effects that could not be avoided and/or would not be amendable to mitigation. The CMs that would be implemented under the Proposed Action (Table 3.0-3) and the habitat mitigation that would occur as part of the Proposed Action, per the requirements of Section 7 consultation with the USFWS, would offset the impacts from the Proposed Action to biological resources. Under the No-Action Alternative, MCAS Camp Pendleton would continue to operate out of conformance with airfield safety regulations, and aircraft operations and personnel would continue to be put at risk. Therefore, the No-Action Alternative would adversely affect public health and safety.

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CHAPTER 7

LIST OF AGENCIES AND PERSONS CONTACTED

Marine Corps Base Camp Pendleton

U.S. Fish and Wildlife Service

CHAPTER 8

LIST OF PREPARERS AND CONTRIBUTORS

Cardno and subcontractor staff prepared this EA under the direction of NAVFAC Southwest. Members of the project team include the following MCAS Camp Pendleton, NAVFAC Southwest, and contractor staff:

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APPENDIX A
AGENCY CORRESPONDENCE

(Note to reader: Correspondence to be provided when it becomes available.)

APPENDIX B

PUBLIC PARTICIPATION

(Note to reader: Documentation to be provided when it becomes available.)

APPENDIX C

RECORD OF NON-APPLICABILITY & AIR QUALITY DATA

**UNITED STATES MARINE CORPS
RECORD OF NON-APPLICABILITY FOR CLEAN AIR ACT
CONFORMITY AND AIR QUALITY
EMISSIONS ESTIMATES**

Introduction

This Proposed Action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable State Implementation Plan (SIP). It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable SIP before the action is taken (40 CFR Part 1 51.850[a]).

Federal actions are exempt from conformity determinations if their emissions do not exceed designated *de minimis* levels for criteria pollutants (40 CFR Part 93.153c). The general conformity rule also exempts certain federal actions from the requirements of the rule, as these actions are assumed to conform to a SIP. Conformity *de minimis* levels (in tons/year) for the San Diego Air Basin (SDAB), the region potentially affected by the Proposed Action, are listed in Table 1.

Table 1. Conformity De Minimis Levels for Criteria Pollutants in the San Diego Air Basin

<i>Criteria Pollutant</i>	<i>De Minimis Level (tons/year)</i>
Carbon Monoxide (CO)	100
Volatile Organic Compounds (VOC)	100
Oxides of Nitrogen (NO _x)	100

Proposed Action

Activity: The Proposed Action involves management and maintenance of vegetation southwest of the Marine Corps Air Station (MCAS) Camp Pendleton runway to conform to the Clear Zone, Transition Zone, and Primary Surface safety requirements. In addition, the Proposed Action would include habitat mitigation either through purchase of credits at an off-installation mitigation bank or through restoration activities at one of two habitat restoration locations at Marine Corps Base (MCB) Camp Pendleton.

Location: MCAS Camp Pendleton is a 488-acre full-service air installation, separate from MCB Camp Pendleton, yet fully enclosed within it. It is bordered on the north to southwest by the Santa Margarita River; on the south and southeast by Vandegrift Blvd; and on the east and northeast by Basilone Road. MCB Camp Pendleton comprises approximately 125,000 acres, is located within San Diego County, and is bordered by the city of San Clemente and Orange County to the northwest, the city of Oceanside to the south, the community of Fallbrook to the east, and the Pacific Ocean to the west.

Proposed Action Name: Environmental Assessment for Clear Zone Maintenance at MCAS Camp Pendleton, California.

Proposed Action Summary: The Proposed Action includes the initial transition of 25.29 acres of riparian habitat to grassland habitat, and regular monitoring and maintenance that would occur indefinitely to ensure that the vegetation in the southwest portion of MCAS Camp Pendleton conforms to the Clear Zone, Transition Zone, and Primary Surface safety requirements. Additionally, two potential mitigation sites have

been identified on MCB CamPen where the USMC could mitigate for impacts to federally listed species' riparian habitat, if needed, by restoring/creating habitat.

For the initial transition of riparian habitat to grassland, a field crew of approximately six people would use chainsaws and pole saws as needed to remove top vegetation. Riparian trees would be removed by grinding the stumps to the ground; with the exception of planting replacement vegetation, no ground disturbance would occur. Ground stumps would also be treated with herbicide to prevent regrowth. A wood chipper would be used to make wood debris more manageable, and trucks would be used to remove all debris. A small bulldozer would be used as needed to load trucks or grade the resulting surface to prevent water from ponding. During grading, topsoil would be stockpiled for on-site redistribution once riparian vegetation clearance is complete. Habitat restoration/creation activities that could occur in the potential mitigation sites are unknown at this time, but would occur over a similar timeframe and area, if not accomplished at an off-installation mitigation bank. Typical habitat restoration activities include seeding, planting by hand, and non-native plant removal.

Air Emissions Summary: Based on the air quality analysis, the emissions for the vegetation clearance portion of the Proposed Action would be well below conformity *de minimis* levels. Attachment (1) of this RONA presents the air emission calculations for the vegetation clearance portion of the Proposed Action. In addition, habitat restoration/creation activities that could potentially occur under the Proposed Action would occur over a similar timeframe and area, and are expected to require a fewer number of vehicles and/or equipment, because no clearing or grading would occur. Therefore, any emissions associated with potential mitigation activities would also fall well below *de minimis* thresholds.

Affected Air Basin: SDAB

Date RONA Prepared: 3 October 2019

RONA Prepared By: MCAS Camp Pendleton with direct support from Cardno

Proposed Action Exemptions

The Proposed Action is exempt because the calculated total emissions are below *de minimis* levels set forth in the Clean Air Act General Conformity Regulation.

Attainment Status and Emissions Evaluation and Conclusion

The General Conformity Rule requires conformity evaluations for proposed emissions that would occur within areas that are in nonattainment or maintenance of a national ambient air quality standard. The project site is within San Diego County and is under the jurisdiction of the San Diego County Air Pollution Control District. Therefore, the focus of this conformity applicability analysis is to compare project emissions to *de minimis* levels applicable to San Diego County.

The SDAB presently is classified as in nonattainment (moderate) for the 8-hour federal ozone (O₃) standard. Ozone is a secondary pollutant formed when O₃ precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOCs) combine in the atmosphere in the presence of sunlight. Therefore, the United States Environmental Protection Agency general conformity regulations set *de minimis* levels for O₃ precursors instead of O₃. The western portion of the SDAB (the portion of the county generally west of the interior desert region) also is in maintenance for carbon monoxide (CO). Based upon these designations, the applicable annual conformity *de minimis* thresholds for these areas are 100 tons of VOCs, NO_x, and CO.

Table 2 summarizes the conformity-related emissions that would occur from the Proposed Action within the San Diego County project region. The main sources of conformity-related emissions associated with the project construction would include combustive emissions due to the use of fossil fuel-powered equipment. The data show that conformity-related emissions for the Proposed Action would be well below the applicable *de minimis* levels. Therefore, emissions from the Proposed Action would show conformity under the Clean Air Act, as amended.

Table 2. Annual Conformity-Related Emissions from the Proposed Action at MCAS Camp Pendleton

<i>Activity</i>	<i>Air Pollutant Emissions (tons/year)</i>		
	VOCs	NO_x	CO
Construction Emissions - 2020	0.04	0.44	0.27
Conformity <i>de minimis</i> Levels (tons/year)	100	100	100
Exceeds Conformity <i>de minimis</i> Levels?	No	No	No

Note: All emissions would occur within one calendar year.

RONA Approval

I concur in the finding that air emissions associated with the Proposed Action are below *de minimis* levels and therefore do not require further conformity evaluation.

Signature

R.T. ANDERSON
 Colonel, U.S. Marine Corps
 Commanding Officer
 Marine Corps Air Station Camp Pendleton

Date

EA for Clear Zone Maintenance MCAS Camp Pendleton - Proposed Action - San Diego Air Basin, Annual

**EA for Clear Zone Maintenance MCAS Camp Pendleton - Proposed Action
San Diego Air Basin, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Industrial Park	0.00	1000sqft	25.29	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

EA for Clear Zone Maintenance MCAS Camp Pendleton - Proposed Action - San Diego Air Basin, Annual

Project Characteristics - All work must be done outside of the active breeding season for listed bird species. Any work, including future maintenance work must be completed between 01 SEP and 14 FEB.

Land Use - Industrial Park is the closest land use type available for use in the model.

Construction Phase - Only two phases needed: Phase one includes site preparation for the initial clearing of vegetation. Phase two includes grading and replanting.

Off-road Equipment - Only one CAT D5 bulldozer will be needed to load cleared debris and grade the project site. There will be a truck to load with debris and cleared vegetation (off-highway truck).

Off-road Equipment - Other construction equipment includes a stump grinder and wood chipper; off-highway truck is for clearing debris

Off-road Equipment - Other construction equipment includes a stump grinder, wood chipper and chain saws to clear debris.

Trips and VMT - There will be a field crew of six people.

On-road Fugitive Dust - Access would be on foot or on existing roads.

Grading - The entire project site will be graded and replanted.

Energy Use -

Construction Off-road Equipment Mitigation -

EA for Clear Zone Maintenance MCAS Camp Pendleton - Proposed Action - San Diego Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	45.00	10.00
tblConstructionPhase	NumDays	20.00	12.00
tblConstructionPhase	PhaseEndDate	11/30/2020	9/30/2020
tblConstructionPhase	PhaseEndDate	9/28/2020	9/16/2020
tblConstructionPhase	PhaseStartDate	9/29/2020	9/17/2020
tblGrading	AcresOfGrading	25.00	25.29
tblGrading	AcresOfGrading	0.00	25.29
tblLandUse	LotAcreage	0.00	25.29
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	13.00	12.00
tblTripsAndVMT	WorkerTripNumber	20.00	12.00

2.0 Emissions Summary

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation-Initial Clearing	Site Preparation	9/1/2020	9/16/2020	5	12	
2	Grading and Replanting	Grading	9/17/2020	9/30/2020	5	10	

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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation-Initial Clearing	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation-Initial Clearing	Other Construction Equipment	2	8.00	172	0.42
Site Preparation-Initial Clearing	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation-Initial Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading and Replanting	Excavators	2	8.00	158	0.38
Grading and Replanting	Graders	1	8.00	187	0.41
Grading and Replanting	Rubber Tired Dozers	1	8.00	247	0.40
Grading and Replanting	Scrapers	2	8.00	367	0.48
Grading and Replanting	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading and Replanting	Off-Highway Trucks	1	8.00	402	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation-Initial Clearing	5	12.00	0.00	2.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading and Replanting	8	12.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Replace Ground Cover

3.2 Site Preparation-Initial Clearing - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0495	0.0000	0.0495	0.0213	0.0000	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1625	0.0994	1.8000e-004		8.1400e-003	8.1400e-003		7.4900e-003	7.4900e-003	0.0000	16.1390	16.1390	5.2200e-003	0.0000	16.2695
Total	0.0157	0.1625	0.0994	1.8000e-004	0.0495	8.1400e-003	0.0577	0.0213	7.4900e-003	0.0288	0.0000	16.1390	16.1390	5.2200e-003	0.0000	16.2695

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.8000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0771	0.0771	1.0000e-005	0.0000	0.0773
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.9000e-004	2.7900e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.8036	0.8036	2.0000e-005	0.0000	0.8042
Total	3.8000e-004	5.7000e-004	2.8600e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8808	0.8808	3.0000e-005	0.0000	0.8815

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3.2 Site Preparation-Initial Clearing - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0495	0.0000	0.0495	0.0213	0.0000	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1625	0.0994	1.8000e-004		8.1400e-003	8.1400e-003		7.4900e-003	7.4900e-003	0.0000	16.1390	16.1390	5.2200e-003	0.0000	16.2695
Total	0.0157	0.1625	0.0994	1.8000e-004	0.0495	8.1400e-003	0.0577	0.0213	7.4900e-003	0.0288	0.0000	16.1390	16.1390	5.2200e-003	0.0000	16.2695

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.8000e-004	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0771	0.0771	1.0000e-005	0.0000	0.0773
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.9000e-004	2.7900e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.0000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.8036	0.8036	2.0000e-005	0.0000	0.8042
Total	3.8000e-004	5.7000e-004	2.8600e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8808	0.8808	3.0000e-005	0.0000	0.8815

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3.3 Grading and Replanting - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0435	0.0000	0.0435	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2721	0.1674	3.6000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	31.6776	31.6776	0.0103	0.0000	31.9337
Total	0.0245	0.2721	0.1674	3.6000e-004	0.0435	0.0114	0.0549	0.0180	0.0105	0.0285	0.0000	31.6776	31.6776	0.0103	0.0000	31.9337

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.4000e-004	2.3300e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6697	0.6697	2.0000e-005	0.0000	0.6702
Total	3.1000e-004	2.4000e-004	2.3300e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6697	0.6697	2.0000e-005	0.0000	0.6702

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3.3 Grading and Replanting - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0435	0.0000	0.0435	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0245	0.2721	0.1674	3.6000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	31.6776	31.6776	0.0103	0.0000	31.9337
Total	0.0245	0.2721	0.1674	3.6000e-004	0.0435	0.0114	0.0549	0.0180	0.0105	0.0285	0.0000	31.6776	31.6776	0.0103	0.0000	31.9337

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.4000e-004	2.3300e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6697	0.6697	2.0000e-005	0.0000	0.6702
Total	3.1000e-004	2.4000e-004	2.3300e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6697	0.6697	2.0000e-005	0.0000	0.6702

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Industrial Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Industrial Park	14.70	6.60	6.60	59.00	28.00	13.00	79	19	2

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Industrial Park	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Industrial Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Industrial Park	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation
