FINAL DRAFT

ENVIRONMENTAL ASSESSMENT

FOR HONDA CREEK CULVERTS REPAIR AND CORROSION PREVENTION

AT

VANDENBERG AIR FORCE BASE, CALIFORNIA

30th Space Wing, Installation Management Flight
1028 Iceland Avenue, Building 11146
Vandenberg Air Force Base, California 93437

March 2021

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DRAFT FINDING OF NO SIGNIFICANT IMPACT/
DRAFT FINDING OF NO PRACTICABLE ALTERNATIVE

HONDA CREEK CULVERTS REPAIR AND CORROSION PREVENTION AT VANDENBERG AIR FORCE BASE, CALIFORNIA

This Finding of No Significant Impact (FONSI) / Finding of No Practicable Alternative (FONPA) hereby incorporates by reference and attaches hereto the Final Environmental Assessment (EA), Honda Creek Culverts Repair and Corrosion Prevention, Vandenberg Air Force Base (VAFB), California. This EA considered all potential environmental impacts of the Proposed Action and the No Action Alternative, in addition to cumulative impacts, and identified measures to avoid and/or minimize environmental impacts.

PROPOSED ACTION

The Proposed Action consists of implementing Honda Creek culvert repair and corrosion prevention at VAFB. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and the Air Force is concerned about pipe and road collapse. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot-diameter (3.3 meter [m]) high-density polyurethane liners would be grouted in place inside the existing culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, the Air Force would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas.

The Air Force has developed water diversion and dewatering plans as part of the Proposed Action. Any existing water found in the culverts would be pumped out. Each culvert would be dewatered and repaired separately. The predesign plan for water diversion would be to place exclusionary netting upstream and downstream of the Action Area, in coordination with biological monitor recommendations, to allow for temporary diversion dam structures to be installed that would divert water flow into one of the two culverts, thus allowing work to occur in the dry culvert without impacts to sensitive species and water quality. The dams would be watertight and would direct flow through a temporary bypass pipe that would convey stream flow through one of the two culverts where work would not be occurring, and downstream past the project area. The inlet bypass pipe would be sealed to the dam in a manner to create a watertight seal to prevent leakage of water into the project site. In prior similar projects, this has been accomplished with a concrete-collared pipe seated into the center of the dam. The upstream diversion dam would be installed up to approximately 100 ft (30.5 m) upstream and would temporarily impact approximately 2,600 square feet (SF) (241.5 square meters [m^2]) of Honda Creek and the associated riparian area. Any remaining water contained within the new diversion zone would be pumped to a water truck or to an infiltration pit as needed to maintain safe working conditions. After dewatering and repair are completed in one culvert, the process would be reversed for the remaining culvert. After repair of both culverts is completed, the temporary diversion dams would be removed, as coordinated with the biological monitor.

Inlet and outlet structures (temporary or permanent fill) also would be needed to assist water flow transition at the culverts. The predesign plan includes the temporary placement of sandbags or soil or sand berms with some rock at the inlet and outlet of each culvert. Fill would consist of a clean fill rock/sand mixture that would be sourced from VAFB borrow pits or imported if clean fill is not available via borrow pits. Depending on site conditions, it is possible that permanent

concrete repairs may be needed to replace scoured areas immediately around the inlet and outlet of each culvert.

The Air Force would use a temporary access route from the outlet side, which consists of an existing road approximately 2,900 linear feet (LF) (883.9 m) in length that comes off the west side of Coast Road and proceeds north. The north end of the existing road is eroded and would require replacement of clean, compacted fill soil at its junction with the proposed new temporary access road. At the end of the existing access road, a new temporary access road, approximately 24 ft (7.3 m) wide and 910 LF (277 m) in length, would be constructed. The new temporary access road would require placement of clean, compacted fill soil to create a "ramp" to transition from the existing road elevation to the beach-level elevation. The new temporary access road would follow a drop in elevation to get to the beach level and would proceed under the existing railroad bridge and then proceed up to the outlet of the culverts. The new temporary access road may also require the placement of fill material along its route, to make it suitably level for the construction mats proposed for use. In addition, shale cover, or a similar cover as long as it provides the same or superior environmental protection as the shale and is approved by 30 CES/CEIE and the 30 CONS CO, would be placed on the new temporary access road once constructed. The Air Force proposes clearing and grubbing vegetation at the west end of the new temporary access route along the beach to the culverts. The total area disturbed for construction of the new temporary access road would be approximately 21,840 SF (2,029 m^2).

The Proposed Action includes use of an approximately 32,200 SF (2,991.5 m^2) previously disturbed area (parking lot) as a vehicle staging area and construction of two temporary staging areas/turnaround areas, totaling approximately 6,840 SF (635.5 m^2). In particular, the Air Force proposes construction of an approximately 4,340 SF (403.2 m^2) temporary staging/turnaround area near the culvert outlet in the foredune zone, and an approximately 2,500 SF (232.3 m^2) turnaround area along the existing unpaved access road. In addition, on the north side, immediately in front of the culverts, the Air Force proposes use of an approximately 7,200 SF (668.9 m^2) area as a temporary staging area. The Air Force also proposes use of an approximately 1,600 SF (148.6 m^2) area on the south side immediately in front of the culverts as a temporary staging area. These temporary staging areas may require the use of swamp or timber matting in order to minimize further damage to the riparian areas. An approximately 150 LF (45.7 m) portion of Coast Road would also be used to temporarily stage vehicles, particularly a concrete pump truck and concrete truck during the grout/slurry operations.

The Air Force anticipates that the Proposed Action would primarily occur outside of the rainy season (approximately 1 October to 15 April), would take approximately 8 months, be limited to daytime hours, and commence upon completion of the NEPA process.

All temporarily disturbed habitat would be restored after repair activities have been completed. In addition, wetland mitigation would be implemented (see Section 2.1.4, Mitigation). Permanent and temporary impacts on habitats, including jurisdictional wetlands, would be offset by performing mitigation through further habitat restoration, as described in Section 2.1.4.

NO ACTION

No action means that an action would not take place, and the resulting environmental effects from taking no action would be compared with the effects of allowing the proposed activity to go forward. Under the No Action Alternative, repairs and corrosion prevention would not be conducted on the Honda Creek culverts. Implementing the No Action Alternative has the potential to result in a detrimental impact on the VAFB mission if Coast Road collapses or becomes undermined in the future. In addition, road collapse, damage, or emergency repairs would have the potential for significant impacts on special-status species and water resources, including

jurisdictional wetlands. VAFB would continue maintenance and emergency repairs to the culverts, as necessary. The No Action Alternative would not meet the Proposed Action's purpose and need.

SUMMARY OF FINDINGS

Potentially affected environmental resources were identified through communications with federal, state, and local agencies, field surveys, and review of past environmental documentation. Specific environmental resources with the potential for environmental consequences include air quality, biological resources, cultural resources, earth resources, hazardous materials and waste management, human health and safety, noise, Coastal Zone management, solid waste management, transportation, and water resources. Some aspects of the Proposed Action were noted as potentially beneficial to biological resources and water resources. If the existing culverts cause failure of Coast Road, adverse impacts from the No Action Alternative could be greater than the Proposed Action. Otherwise, the No Action Alternative would result in impacts less than the Proposed Action. Environmental protection measures that are incorporated into the Proposed Action (identified as required in the EA) would be implemented to avoid and/or minimize the potential adverse impacts. Discretionary environmental protection measures may further reduce potential impacts of the Proposed Action.

NOTICE OF WETLAND INVOLVEMENT

Pursuant to Executive Order (EO) 11990, *Protection of Wetlands*, EO 11988, *Floodplain Management*, and Air Force Manual (AFMAN) 32-7003, *Environmental Conservation*, the Air Force hereby provides notice of the potential impacts to wetland or floodplain as a result of the Proposed Action. Jurisdictional wetlands were found in the Project Area. Potential impacts on wetlands may occur as a result of the proposed activities.

Four alternatives in addition to the No Action Alternative were reviewed during the EA development process under the requirements of NEPA, but they were eliminated from further detailed analysis in the EA because they did not meet the stated purpose and need for the action, were not practicable, or would have led to greater overall environmental impacts. The only practicable alternative is the Proposed Action. For the reasons stated in the EA, the dismissed alternatives are not practicable alternatives to avoid potential wetland impacts.

Similarly, there is no practicable alternative to implementing the Proposed Action outside of the Honda Creek floodplain because the culverts are located in Honda Creek under Coast Road. Coast Road provides transportation to mission critical access points on VAFB. The Air Force has a no net loss policy on wetlands and impacts on wetlands will comply with the terms of the US Army Corps of Engineers Clean Water Act Section 404 permit. The Air Force is committed to mitigating the loss of wetlands through restoration, enhancement, and creation of wetlands at the location of the culverts and within the designated Riparian Mitigation Area.

PUBLIC REVIEW AND COMMENT

The Final Draft EA and Final Draft FONSI/FONPA were made available for public review and comment for 30 days following the publication of the Notice of Availability (NOA) in the *Lompoc Record* and *Santa Maria Times*. The Final Draft EA and Final Draft FONSI/FONPA were also distributed per the current VAFB NEPA Distribution List, including the State Clearinghouse. Appendix I contains a copy of the NOA and VAFB's NEPA distribution list. Proof of publication, proof of library deliveries, and public comments received on the Draft EA, including VAFB responses, will be included Appendix I of the Final EA.

FINDING OF NO SIGNIFICANT IMPACT / FINDING OF NO PRACTICABLE ALTERNATIVE

Based on my review of the facts and analyses contained in the attached EA conducted in accordance with the NEPA, 42 U.S. Code 4321 et seq., implementing CEQ Regulations, 40 CFR

1500-1508, and 32 CFR Part 989, *Environmental Impact Analysis Process*, I conclude that implementing the Proposed Action (chosen alternative), with incorporation of required environmental protection measures, will not have a significant effect on the human environment. Pursuant to EO 11990, *Protection of Wetlands*, EO 11988, *Floodplain Management*, AFMAN 32-7003, *Environmental Conservation*, and the authority delegated by Secretary of the Air Force Order 791.1, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the wetland and floodplain environments. Therefore, further analysis in the form of an Environmental Impact Statement is not required and a FONSI/FONPA is appropriate. This decision has been made after considering all submitted information, including a review of public and agency comments submitted during the 30-day public comment period, and considering a full range of practical alternatives that meet project requirements and are within the legal authority of the Air Force.

_____ _____

CLIFFORD THEONY Date
Colonel

Attachment: FINAL ENVIRONMENTAL ASSESSMENT (2021)
HONDA CREEK CULVERTS REPAIR AND CORROSION PREVENTION AT VANDENBERG AIR FORCE BASE, CALIFORNIA

PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality NEPA Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) and 32 CFR Part 989, Environmental Impact Analysis Process (EIAP).

The EIAP provides an opportunity for public input on Air Force decision making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

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LIST OF ACRONYMS AND ABBREVIATIONS

30 SW	30th Space Wing
°F	degrees Fahrenheit
AADT	Annual Average Daily Traffic
ac	acre
ADI	Area of Direct Impact
ADT	Average Daily Traffic
AFMAN	Air Force Manual
AFOSH	Air Force Occupational Safety and Health
Air Force	United States Air Force
AOC	Area of Concern
AOI	Area of Interest
APE	Area of Potential Effects
APZ	Accident Potential Zone
Basin Plan	Water Quality Control Plan
BCC	federal bird of conservation concern
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
C&D	construction and demolition
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CCA	California Coastal Act
CCC	California Coastal Commission

1	CCR	Code of Regulations
2	CCRWQCB	Central Coast Regional Water Quality Control Board
3	CDFW	California Department of Fish and Wildlife
4	CEQ	Council on Environmental Quality
5	CES/CEI	30th Space Wing, Installation Management Flight
6	CES/CEIEA	Installation Management Flight, Environmental Conservation
7	CES/CEIEC	Installation Management Flight, Environmental Compliance
8	CFR	Code of Federal Regulations
9	CH_4	methane
10	CO	carbon monoxide
11	CO_2	carbon dioxide
12	CO_2e	carbon dioxide equivalent
13	CRLF	California red-legged frog
14	CWA	Clean Water Act
15	CZMA	Coastal Zone Management Act
16	dB	decibel
17	dBA	A-weighted
18	DoD	Department of Defense
19	DOT	Department of Transportation
20	EA	Environmental Assessment
21	EMS	Environmental Management System
22	EO	Executive Order
23	EPM	environmental protection measure
24	ESA	Endangered Species Act
25	FE	federal endangered species
26	FR	Federal Register

FT	federal threatened species
ft	foot/feet
GHG	greenhouse gas
GIS	geographic information system
GSA	groundwater sustainability agency
GSP	Groundwater Sustainability Plan
GWP	global warming potential
ha	hectare
HazMart	Hazardous Materials Pharmacy
HDPE	high-density polyurethane
HFC	hydrofluorocarbon
HS	hydrogen sulfide
HTL	high tide line
HWMP	Hazardous Waste Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
km	kilometer
LCZ	Lateral Clear Zone
L_{eq1H}	one-hour average sound level
LF	linear foot/feet
LOS	Level of Service
$\mu g/m^3$	micrograms per cubic meter
m	meter
m^2	square meter
mi	mile

1	N/A	not applicable
2	NAAQS	National Ambient Air Quality Standards
3	NCA	Noise Control Act
4	NEPA	National Environmental Policy Act
5	NHPA	National Historic Preservation Act
6	N_2O	nitrous oxide
7	NO_2	nitrogen dioxide
8	NO_x	oxides of nitrogen
9	NPDES	National Pollutant Discharge Elimination System
10	NRHP	National Register of Historic Places
11	NWPR	Navigable Waters Protection Rule
12	O_3	ozone
13	Ocean Plan	Water Quality Control Plan for Ocean Waters of California
14	OHWM	ordinary high-water mark
15	OSHA	Occupational Safety and Health Administration
16	UXO	unexploded ordnance
17	P2	pollution prevention
18	Pb	lead
19	PBO	Programmatic Biological Opinion
20	$PM_{2.5}$	particulate matter less than 2.5 micrometers
21	PM_{10}	particulate matter less than 10 micrometers
22	POL	petroleum, oil, and lubricant
23	ppb	parts per billion
24	ppm	parts per million
25	ppmv	parts per million by volume
26	ppt	parts per thousand

1	RCRA	Resource Conservation and Recovery Act
2	ROG	reactive organic gases
3	ROI	region of influence
4	RWQCB	Regional Water Quality Control Board
5	SBCAPCD	Santa Barbara County Air Pollution Control District
6	SBCPD	Santa Barbara County Planning and Development Department
7	SCCAB	South Central Coast Air Basin
8	SCE	state candidate endangered
9	SE	state endangered species
10	SF	square foot/feet
11	SGMA	Sustainable Groundwater Management Act of 2014
12	SHPO	State Historic Preservation Officer
13	SIP	State Implementation Plan
14	SO_2	sulfur dioxide
15	SO_4	sulfates
16	SR	State Route
17	SSC	state candidate species
18	SSPP	Strategic Sustainability and Performance Plan
19	SW	Space Wing
20	SWMP	Solid Waste Management Plan
21	SWP	Space Wing Plan
22	SWPPP	Storm Water Pollution Prevention Plan
23	SWRCB	State Water Resources Control Board
24	TWG	tidewater goby
25	US	United States
26	US 101	US Highway 101

1	USACE	US Army Corps of Engineers
2	U.S.C.	United States Code
3	USEPA	US Environmental Protection Agency
4	USFWS	US Fish and Wildlife Service
5	UXO	unexploded ordnance
6	VAFB	Vandenberg Air Force Base
7	V/C	volume to capacity
8	VOC	volatile organic compound
9	WOTS	waters of the State
10	WOTUS	waters of the United States

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The 30th Space Wing, Installation Management Flight (30 CES/CEI), has prepared this Environmental Assessment (EA) to evaluate the potential environmental effects of implementing the Proposed Action and identified alternatives per the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508), and the United States (US) Air Force's (Air Force) Environmental Impact Analysis Process regulations (32 CFR 989). The Proposed Action consists of implementing Honda Creek culvert repair and corrosion prevention at Vandenberg Air Force Base (VAFB). The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and the Air Force is concerned about pipe and road collapse. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot-diameter (3.3 meter [m]) high-density polyurethane (HDPE) liners would be grouted in place inside the existing culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, the Air Force would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas. The Air Force proposes clearing and grubbing vegetation for a temporary access route to the culverts.

1.1 Project Location

VAFB is headquarters for the 30th Space Wing (30 SW). The 30 SW at VAFB is the Air Force Space Command organization responsible for Department of Defense (DoD) space and missile launch activities on the West Coast of the United States. Satellites destined for polar or near-polar orbit are launched from VAFB, and ballistic missiles are tested. The 30 SW supports West Coast launch activities for the Air Force, DoD, Missile Defense Agency, National Aeronautics and Space Administration, foreign nations, and various private industry contractors. To accommodate space and missile launches, roadways are required to access all portions of VAFB.

VAFB is located on the south-central coast of California, approximately halfway between San Diego and San Francisco (Figure 1-1). The Base covers 99,099 acres (ac) (40,104 hectares [ha]) in western Santa Barbara County and occurs in a transitional ecological region that includes the northern and southern distributional limits for many plant and animal species.

The Proposed Action Area is located along Coast Road, a major, paved artery connecting sites along the western edge of VAFB on South Base (Figure 1-2). Where it crosses Honda Creek, two culverts convey water under the road and into the small estuary at the mouth of Honda Creek (aka Cañada Honda Creek). Honda Creek is an 8.4-mile (mi) (13.52 kilometer [km]) perennial east- to west-running stream entirely on South VAFB that may occasionally run dry during extended drought periods (Air Force 2015). The mouth of Honda Creek terminates in a small estuary with a pocket beach and ultimately connects to the Pacific Ocean. Inland from the coast, Honda Creek lies at the bottom of a steep-sided canyon that drains a large portion of South VAFB. The creek is crossed near the estuary by two major transportation corridors: Coast Road and the Union Pacific Railroad. The railroad crosses over the deep canyon via a trestle, but Coast Road was built on fill over two 13-foot (ft)-diameter (4.0 m diameter), 330 ft long (101

m long) culverts that are subject to siltation and accumulation of debris (Figure 1-3). Currently, during normal stream flow, only the northern culvert conveys water as the southern passage has accumulated a large amount of silt (Figure 1-3).

1.2 Purpose of and Need for the Proposed Action

Reliable transportation corridors are critical to the missions of the 30 SW. A transportation network of paved and unpaved roads and trails connects operations across the base, and this network requires ongoing maintenance. Roads that cross waterways via culverts may require repair or cleaning to maintain flow and prevent erosion of the roadbed. Coast Road is a major, paved artery connecting sites along the western edge of VAFB on South Base. Where Coast Road crosses Honda Creek, two culverts convey water under the road and into the small estuary at the mouth of Honda Creek. These culverts have collected silt and flood debris and require clearing and repairs to the culvert lining to prevent further degradation.

The purpose of the Proposed Action is to repair existing culverts and add corrosion prevention to the culverts where Coast Road crosses Honda Creek. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. The need for the Proposed Action is to eliminate Coast Road collapse risk. Further degradation of the culverts could result in the failure of Coast Road, which is a critical roadway for launch missions. If the culverts are not repaired and future corrosion not prevented, space launch missions would continue to operate under the risk of potential road collapse, which would result in significant reduction of physical access on South Base, impacts to space launch missions, and constraints on VAFB to provide safety and security support due to lack of access.

1.3 Scope of the Programmatic Environmental Assessment

This EA identifies, describes, and evaluates the potential environmental impacts that could result from the Proposed Action and the No Action Alternative, as well as possible cumulative impacts from other past, present, and planned actions on VAFB. In, addition, the EA identifies environmental permits relevant to the Proposed Action. As appropriate, the EA describes, in terms of a regional overview or a site-specific description, the affected environment and environmental consequences of the action. Finally, the EA identifies management measures to avoid, prevent, or minimize environmental impacts.

1.4 Interagency Coordination and Consultation

Air Force Manual 32-7003, *Environmental Conservation* (April 2020), requires the Air Force to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements. Through the IICEP process, VAFB notified relevant federal, state, and local agencies and the surrounding communities of the Proposed Action and provided them with sufficient time to make known their environmental concerns specific to the action (Appendix A).

Figure 1-1. Regional Location of Vandenberg Air Force Base

Figure 1-2. Proposed Action Area and Vicinity

Figure 1-3. Inlet End of the Honda Creek Culverts Showing Trapped Debris and Sediment

The Proposed Action is a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act (NHPA). VAFB has initiated consultation with the State Historic Preservation Officer (SHPO) under 36 CFR 800 (Appendix B). Consultation on the Proposed Action with the Santa Ynez Band of the Chumash Indians is ongoing (Appendix C).

VAFB determined that the Proposed Action may affect threatened or endangered species and submitted a prenotification (813-17-0075) to the US Fish and Wildlife Service (USFWS) under the Programmatic Biological Opinion (PBO) 8-8-13-F-49R (Appendix D). The prenotification was approved by the USFWS on 18 March 2021 (Appendix D).

Under Section 401 of the Clean Water Act of 1977 (CWA), a federal agency must obtain a Section 401 water quality certification to perform any activity that may result in a discharge to waters of the state (WOTS). The State Water Resources Control Board (SWRCB) and, locally, the Central Coast Regional Water Quality Control Board (RWQCB) administer the CWA and state water regulations. VAFB is currently coordinating with the RWQCB for a 401 water quality certification (Appendix F).

Under Section 404 of the CWA, the US Army Corps of Engineers (USACE), any proposed activities including the discharge of dredged or fill materials into waters of the United States (WOTUS) must be reviewed by the USACE and issued a Section 404 permit before the activity may occur. VAFB is currently coordinating with the USACE to obtain a Section 404 permit (Appendix F) once the EA FONPA is completed.

EO 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The Proposed Action is subject to the requirements and objectives of EO 11988 because its intended location is in the floodplain. VAFB published an early public notice in the *Lompoc Record* and *Santa Maria Times* on 19 July 2020 to solicit public comment on the Proposed Action and any practicable alternatives for a period of 30 days from 19 July 2020 through 18 August 2020 (Appendix A). No comments were received during this advance public comment period.

Under the Coastal Zone Management Act (CZMA) of 1972 (16 US Code [U.S.C]. §§ 2452–24645), a federal action that may affect the coastal zone must be carried out in a manner that is consistent with state coastal zone management programs. On 18 March 2021, the California Coastal Commission (CCC) concurred with a negative determination for the Proposed Action at VAFB, wherein the Executive Director determined that the proposed project would not adversely affect coastal resources (Appendix G).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter provides detailed descriptions of the Proposed Action, including equipment needs, construction requirements, and operational parameters, as well as the No Action Alternative.

2.1 Proposed Action

2.1.1 *Culverts Repair and Corrosion Prevention*

The Proposed Action involves culvert repair and corrosion prevention at Honda Creek (Figure 2-1). The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and collapse is a concern. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11 ft (3.3 m) diameter high-density polyurethane liners would be grouted in place inside the existing culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, the Air Force would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas (Figure 2-1).

The Air Force has developed water diversion and dewatering plans as part of the Proposed Action. Any existing water found in the culverts would be pumped out. Each culvert would be dewatered and repaired separately. The predesign plan for water diversion would be to place exclusionary netting upstream and downstream of the Action Area, in coordination with biological monitor recommendations, to allow for temporary diversion dam structures to be installed that would divert water flow into one of the two culverts, thus allowing work to occur in the dry culvert without impacts to sensitive species and water quality. The dams would be watertight and would direct flow through a temporary bypass pipe that would convey stream flow through one of the two culverts where work would not be occurring, and downstream past the project area. The inlet bypass pipe would be sealed to the dam in a manner to create a watertight seal to prevent leakage of water into the project site. In prior similar projects, this has been accomplished with a concrete-collared pipe seated into the center of the dam. The upstream diversion dam would be installed up to approximately 100 ft (30.5 m) upstream and would temporarily impact approximately 2,600 square feet (SF) (241.5 square meters [m^2]) of Honda Creek and the associated riparian area. Any remaining water contained within the new diversion zone would be pumped to a water truck or to an infiltration pit as needed to maintain safe working conditions. After dewatering and repair are completed in one culvert, the process would be reversed for the remaining culvert. After repair of both culverts is completed, the temporary diversion dams would be removed, as coordinated with the biological monitor.

Inlet and outlet structures (temporary or permanent fill) also would be needed to assist water flow transition at the culverts. The predesign plan includes the temporary placement of sandbags or soil or sand berms with some rock at the inlet and outlet of each culvert. Fill would consist of a clean fill rock/sand mixture that would be sourced from VAFB borrow pits or imported if clean fill is not available via borrow pits. Depending on site conditions, it is possible

that permanent concrete repairs may be needed to replace scoured areas immediately around the inlet and outlet of each culvert.

The Air Force would use a temporary access route from the outlet side, which consists of an existing road approximately 2,900 linear feet (LF) (883.9 m) in length that comes off the west side of Coast Road and proceeds north (Figure 2-1). The north end of the existing road is eroded and would require replacement of clean, compacted fill soil at its junction with the proposed new temporary access road.

At the end of the existing access road, a new temporary access road, approximately 24 ft (7.3 m) wide and 910 LF (277 m) in length, would be constructed. The new temporary access road would require placement of clean, compacted fill soil to create a "ramp" to transition from the existing road elevation to the beach-level elevation. The new temporary access road would follow a drop in elevation to get to the beach level and would proceed under the existing railroad bridge (Figure 2-2) and then proceed up to the outlet of the culverts. The new temporary access road may also require the placement of fill material along its route, to make it suitably level for the construction mats proposed for use. In addition, shale cover, or a similar cover as long as it provides the same or superior environmental protection as the shale and is approved by 30 CES/CEIE and the 30 CONS CO, would be placed on the new temporary access road once constructed. The Air Force proposes clearing and grubbing vegetation at the west end of the new temporary access route along the beach to the culverts. The total area disturbed for construction of the new temporary access road would be approximately 21,840 SF (2,029 m^2).

The Air Force anticipates that the Proposed Action would primarily occur outside of the rainy season (approximately 1 October to 15 April), would take approximately 8 months, be limited to daytime hours, and commence upon completion of the NEPA process.

2.1.2 *Vehicle Staging Areas*

The Proposed Action includes use of an approximately 32,200 SF (2,991.5 m^2) previously disturbed area (parking lot) as a vehicle staging area and construction of two temporary staging areas/turnaround areas, totaling approximately 6,840 SF (635.5 m^2) (Figure 2-1). In particular, the Air Force proposes construction of an approximately 4,340 SF (403.2 m^2) temporary staging/turnaround area near the culvert outlet in the foredune zone, and an approximately 2,500 SF (232.3 m^2) turnaround area along the existing unpaved access road (Figure 2-1).

In addition, on the north side, immediately in front of the culverts, the Air Force proposes use of an approximately 7,200 SF (668.9 m^2) area as a temporary staging area (Figure 2-1). The Air Force also proposes use of an approximately 1,600 SF (148.6 m^2) area on the south side immediately in front of the culverts as a temporary staging area (Figure 2-1). These temporary staging areas may require the use of swamp or timber matting in order to minimize further damage to the riparian areas. An approximately 150 LF (45.7 m) portion of Coast Road (Figure 2-1) would also be used to temporarily stage vehicles, particularly a concrete pump truck and concrete truck during the grout/slurry operations.

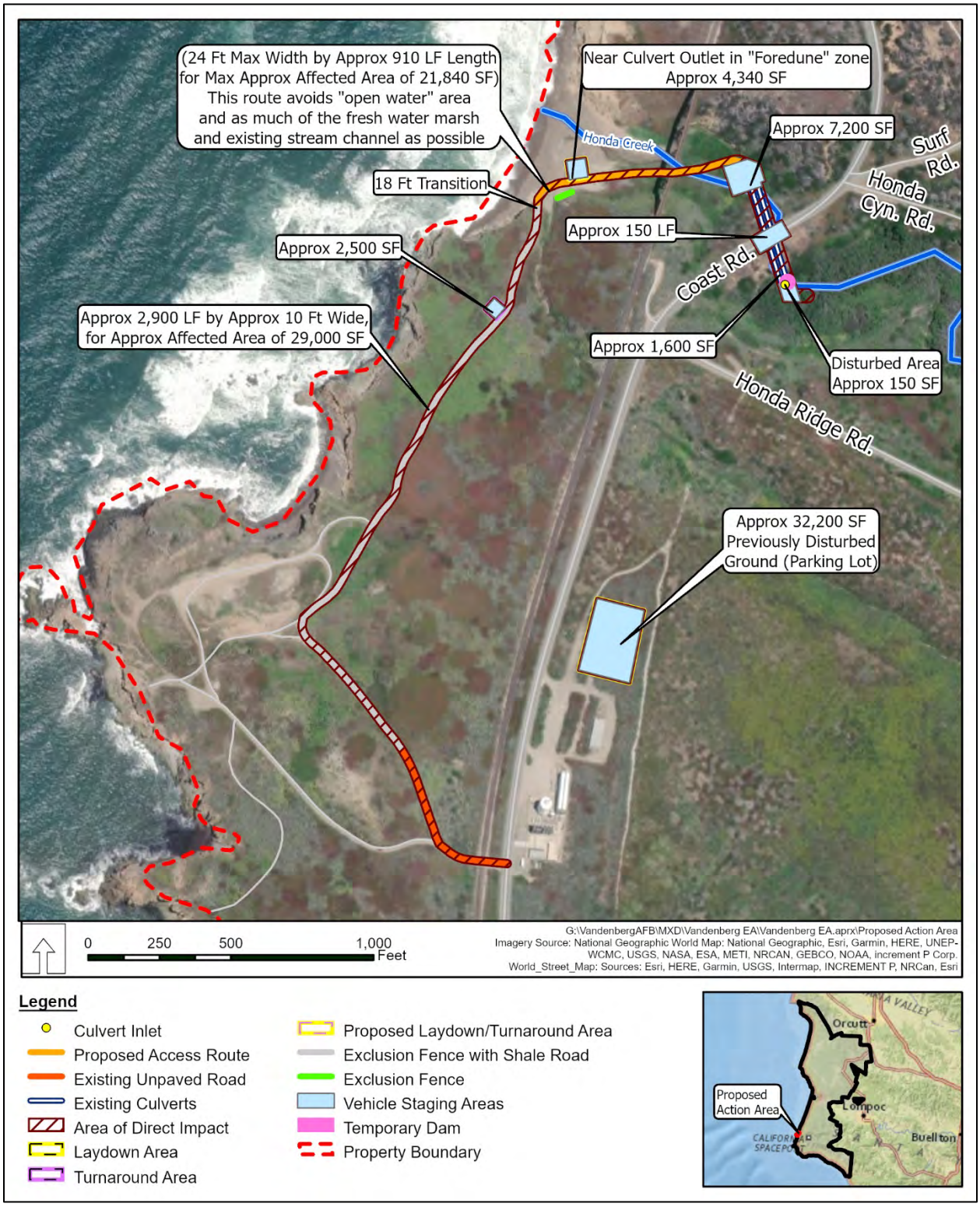

Figure 2-1. Proposed Action Area

Figure 2-2. Overview of the Mouth of Honda Creek and Honda Beach, Including the Railroad Bridge, Where a New Temporary Access Road Would Be Constructed

2.1.3 *Site Restoration*

Access roads and vehicle staging areas would be constructed and an area of approximately 2,788 SF (259 m^2) would be cleared at the intake end of the culverts. Restoration of the areas impacted during the culvert repairs would begin during the final stages of the Proposed Action, as machinery and materials are removed. All surplus and waste materials would be removed from the Proposed Action Area unless they are also required for the restoration of the Proposed Action Area. To the extent practicable, the site contours and habitat types would be restored to premaintenance conditions. Native herbaceous vegetation would be replanted to restore all temporarily disturbed areas. Permanent and temporary impacts on vegetation would be offset by performing mitigation through further habitat restoration, as described in Section 2.1.4.

2.1.4 *Mitigation*

The USACE and the RWQCB strive to maintain a “no net loss” of value and physical size of wetlands and other water bodies. The requirements of the CWA Section 401 and 404 permits that will be issued for the Proposed Action would include mitigation measures for temporary and

permanent impacts on all potential WOTUS and WOTS. Within the project area, about 0.44 ac (0.18 ha) of potential WOTUS would experience temporary effects. An additional 0.27 ac (0.11 ha) qualify as potential WOTS, and a total of 0.71 ac (0.29 ha) of potential WOTS would be temporarily affected by the Proposed Action. Affected areas include both potential wetlands and potential nonwetland jurisdictional waters consisting of a stream channel and riparian zone resources.

In order to determine the area required for compensatory mitigation, USACE uses a set of criteria including if off-site mitigation is performed inside the affected watershed, if there is a net loss of aquatic surface area, if there is a type conversion of habitat, the degree of risk of failure of the mitigation, and the degree of temporal loss of function of the aquatic resource during construction and before mitigation is complete. Each criterion is evaluated and assigned a positive or negative value and all values are totaled to achieve a mitigation ratio. Mitigation ratios start at 1:1 affected area: mitigated area, and the mitigated area is adjusted according to the criteria scores. VAFB used the USACE compensatory mitigation criteria to determine that the Honda culvert repair would require a mitigation ratio of 1 ac (0.40 ha) of affected area to 3.52 ac (1.32 ha) of mitigation area. The total impact to WOTUS is 0.44 ac (0.18 ha), resulting in a total required mitigation area of 1.43 ac (0.58 ha). A full description is included in the Conceptual *Mitigation Plan for Honda Culvert Repair at Vandenberg Air Force Base, California* (ManTech SRS Technologies 2021; Appendix H).

To mitigate for impacts to WOTUS and WOTS, 0.71 ac of WOTUS and 0.44 ac of waters of the state will be re-established through restoration of the temporary disturbances including the access road and the work site at the inlet end. However, should permanent impacts result, this proposed mitigation may be adjusted to restore adequate area. Under the current anticipated temporary impacts, a total of 1.43 ac of restoration is required to satisfy a mitigation ratio of 1: 3.25. VAFB proposes that the remaining mitigation be accomplished through a combination of iceplant (*Carpobrotus* spp.) treatment in the Honda estuary (0.40 ac available) and treatment of Eucalyptus (*Eucalyptus* sp.) trees upstream in Honda Creek (4.51 ac available; Figure 2-3).

In total, 0.40 ac of habitat infested with iceplant is found both in large mats and interspersed throughout native habitat in the estuary (Figure 2-3). Iceplant would be treated with a glyphosate herbicide to enhance and improve native habitat function after construction activities have been completed and the temporary access roads have been removed from the site. An initial treatment and two follow-up maintenance treatments would be performed during the first year of mitigation. Retreatments would be performed twice a year afterward as necessary for up to five years.

In addition to treating iceplant in the estuary, a 4.51-ac stand of eucalyptus found in Honda Creek approximately 0.95 mi (1.53 km) upstream of the project area would be treated (Figure 2-3). Eucalyptus would be treated with herbicides in one of the following ways: basal bark treatment, girdle and treat, or “drill and fill”. Small and medium trees would be treated with a basal bark application of triclopyr herbicide (trade name Garlon 4 Ultra®). Workers would girdle larger trees and apply imazapyr herbicide (trade name Polaris®) to the wound or perform a “drill

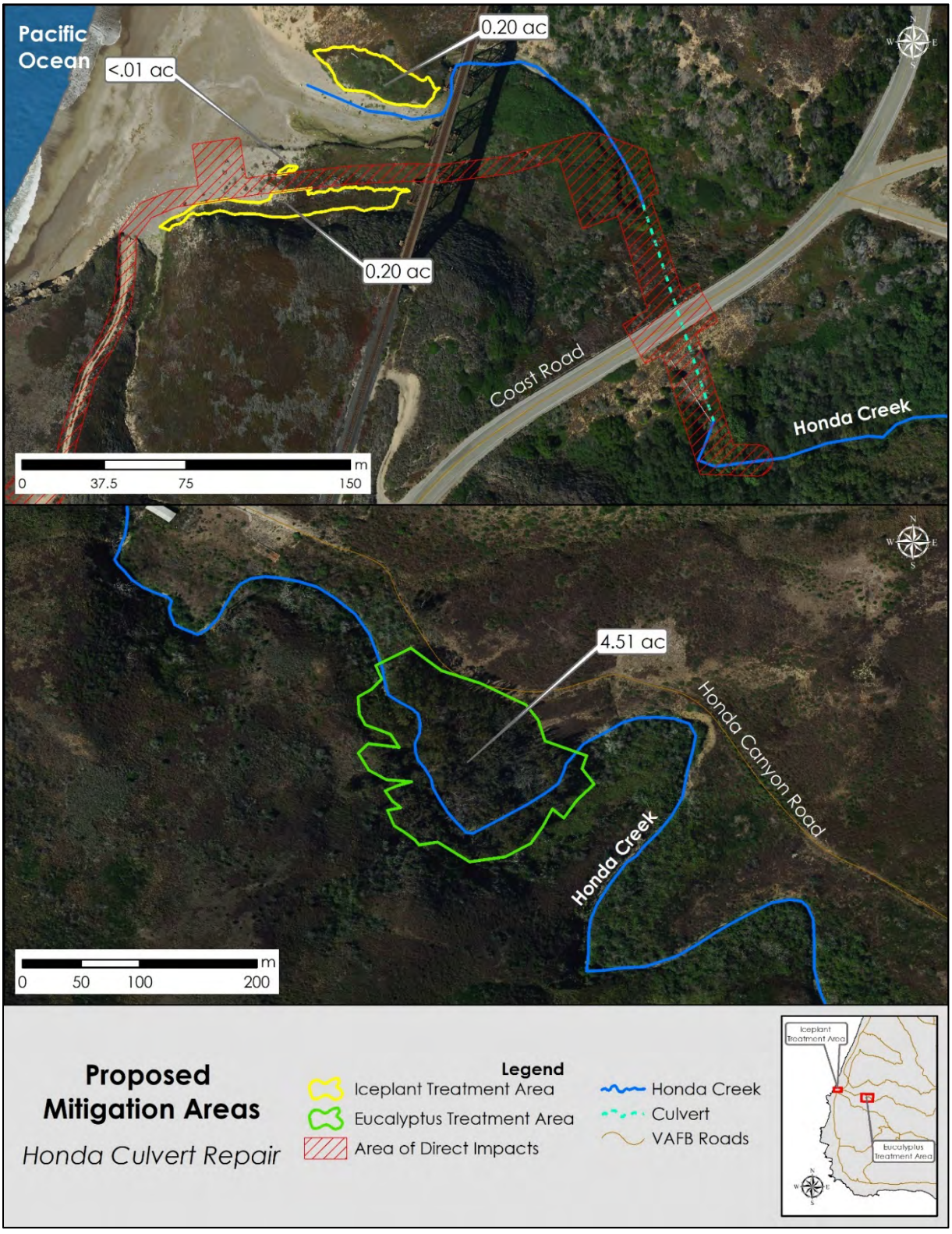

Figure 2-3. Proposed Mitigation Areas

and fill" treatment, by which a hole is bored into the tree and filled with imazapyr herbicide. The ideal timing for eucalyptus treatment would be in the late summer/early fall. Follow up monitoring of the efficacy of the treatment and retreatments of trees that survived and saplings would occur annually for five years.

Under either treatment method, trees would be left in place to decompose so that ground disturbance would be minimized, allowing native understory to develop with tall dead snags available for wildlife nesting and roosting habitat. Eucalyptus removal is also expected to enhance the watershed by reducing draw on groundwater, as has been demonstrated in similar climates where Eucalyptus have been shown to impact hydrology (Scott & Lesch 1997; Zhang et al. 1999; Dye & Versfeld 2007).

Additional maintenance treatments and monitoring requirements for these areas would be described in the Compensatory Mitigation and Monitoring Plan (CMMP), along with environmental protection measures to minimize the risk of negative impacts during herbicide applications.

2.1.5 *Project Equipment Needs*

The exact type of equipment that would be used during construction may vary slightly from the projections presented in Table 2-1, depending on contractor capabilities. However, these estimates provide a basis for analyzing related issue areas such as air quality, noise, and traffic. In addition to the equipment presented in Table 2-1, three pickup trucks would be used daily for a duration of approximately 6 months, for a total of 2,880 hours. It is likely that rough terrain cranes and rough terrain forklifts would also be needed to manipulate the new HDPE pipe sections at the culvert inlets, particularly on the north side. Prior to use of the rough terrain equipment, a dozer, track hoe, wheel loader, skid steer loader, and trucks would be used to clear and grub the area and haul off the spoils.

Table 2-1. Construction Equipment Assumptions Associated with Proposed Action

Construction Equipment Assumptions					
Equipment Type	**Equipment Assumption**	**Horsepower**	**Year**	**Quantity**	**Total Hours**
Concrete Truck	Peterbilt 567	335	2015	2	320
Bobcat	Bobcat CT2535	35	2019	2	640
Grader	CAT 140 / 140 AWD - LVR	250	2020	2	640
Compactor	Wacker Neuson WP1540AW - 16.9" width, 3372 LB CF, Honda Engine, Water Tank	5	2020	2	640
Dump Truck	2015 Kenworth T400	380	2015	2	640
Flatbed	2013 Freightliner Cascadia Flatbed Truck	410	2013	2	640

2.1.6 *Environmental Protection Measures*

Implementation of the environmental protection measures (EPMs) outlined below should avoid or minimize potential adverse effects on various environmental resources during implementation of the Proposed Action. Mandatory EPMs (denoted by “shall” or “would”) are part of the project design and would be implemented as part of the Proposed Action so as to avoid, minimize, reduce, or compensate for the anticipated environmental impacts. Discretionary measures (denoted by “may” or “could”) may or may not be implemented to further reduce environmental impacts.

Air Quality

The Santa Barbara County Air Pollution Control District (SBCAPCD) applies the following dust control measures to decrease fugitive dust emissions from ground-disturbing activities:

- Water (preferably reclaimed) shall be applied at least twice daily to dirt roads, graded areas, and dirt stockpiles to prevent excessive dust at the staging areas. Watering frequency would be increased whenever wind speed exceeds 15 mi per hour (24 km per hour).
- After completion of construction activities, disturbed soil shall be treated by watering, revegetating, or spreading soil binders to prevent wind erosion of the soil.
- All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust.
- All haul trucks would be required to exit the site via an access point where a gravel pad or rumble grate has been installed.
- Stockpiles of soil or other fine, loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.
- On-site vehicle speeds shall be limited to 15 mi per hour (24 km per hour).
- Ground disturbance shall be limited to the smallest practical area and to the least amount of time.
- Designated personnel shall monitor project activities to ensure that excessive dust is not generated.
- The Proposed Action shall comply with Storm Water Management Plans, including best management practices (BMPs) to reduce dust emissions.
- Any portable equipment powered by an internal combustion engine with a rated horsepower of 50 brake horsepower or greater used for this project shall be registered in the California State-Wide Portable Equipment Registration Program or have a valid SBCAPCD permit to operate. Examples of such equipment are portable generators, compressors, and light-carts. Copies of each registration or permit along with fuel usage and hours of operation must be submitted to the 30th SW, Installation Management Flight, Environmental Compliance (30 CES/CEIEC) Air Quality section at the end of the project or by 15 January, whichever occurs first.

- Maintenance activities shall comply with SBCAPCD Rule 345, *Control of Fugitive Dust from Construction and Demolition Activities.* Under Rule 345, construction, demolition, or earthmoving activities are prohibited from causing discharge of visible dust outside the property line and must utilize standard BMPs to minimize dust from truck hauling, track-out/carry-out from active construction sites, and demolition activities.
- Off-road construction equipment shall be compliant with all federal, state, and local regulations. A description of each piece of equipment to include make, model, serial number, and rated brake horsepower, along with fuel usage and hours of operation must be provided to the 30 CES/CEIEC Air Quality section at the end of the project or by 15 January, whichever occurs first.

The following control measures would be implemented to decrease diesel emissions, as applicable:

- When feasible, the contractor may use equipment powered with federally mandated "clean" diesel engines.
- The size of the engine in equipment and number of pieces of equipment operating simultaneously for the project should be minimized.
- Engines should be maintained in tune per manufacturer or operator's specification.
- Ultra-low sulfur diesel fuel (15 parts per million by volume [ppmv]) will be used for all diesel equipment.
- US Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) certified diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters will be installed on all diesel equipment.
- CARB idling regulations will be followed for diesel trucks during loading and unloading when applicable.
- When practicable, diesel equipment should be replaced with electrical equipment.
- The construction period should be lengthened during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
- Alternative-fueled construction equipment, such as compressed natural gas, liquefied natural gas, or electric, would be used if feasible.

Biological Resources

The PBO authorization received from the USFWS is attached as Appendix D. Although the measures listed below are proposed, the specific requirements of the final regulatory documents will be the required measures as they are a result of the end of the Endangered Species Act (ESA) Section 7 consultation process.

General Protection and Monitoring Measures

The following protection and monitoring measures would apply to all aspects of the Proposed Action to protect and minimize effects on biological resources.

- Qualified biological monitors, approved by USFWS and 30 CES/CEIEA, including personnel who are familiar with and possess necessary permits to capture, handle, and release tidewater goby (TWG; *Eucyclogobius newberryi*) and California red-legged frog (CRLF; *Rana draytonii*), shall be present at all times during construction and monitoring activities throughout the length of the project to minimize impacts on all special-status plant and wildlife species, jurisdictional wetland resources, and other native plant communities found in the Proposed Action Area. The biological monitors shall be responsible for delineating areas where special-status species are located or concentrated, relocating special-status species in jeopardy of being killed or injured by construction and dewatering activities, and inspecting equipment and equipment staging areas for fluid leaks. Prior to the onset of maintenance activities, resumes of qualified biologist (s), who would conduct the monitoring, surveying, species relocation, and other biological field activities shall be submitted by 30 CES/CEIEA to the USFWS for approval.
- Qualified biologists shall brief all project personnel prior to participating in project implementation activities. At a minimum, the training would include a description of the listed species and sensitive biological resources occurring in the area, the general and specific measures and restrictions to protect these resources during project implementation, the provisions of the ESA and the necessity of adhering to the provisions of the ESA, and the penalties associated with violations of the ESA.
- Disturbances in the creek shall be kept to the minimum extent necessary to accomplish project objectives and limited to placement of the temporary access routes, diversion dams, and culverts.
- All excess materials excavated shall be removed from the creek. All excavated/removed excess mixed soils, grubbed vegetation, and other materials require off-base disposal/ recycling at appropriately permitted facilities. Clean soils may be stockpiled in pre-approved on-base borrow pit locations. Contractor is required to report off-base transport and all tonnages post-project to 30 CES/CEI at: daniel.carson.1@us.af.mil.
- All erosion control materials used (i.e., gravel, sand, fill material, wattles, etc.) would be from weed-free sources. Only nonplastic, 100 percent biodegradable erosion control materials (e.g., erosion blankets, wattles) would be left in place following project completion.
- Portable toilets would only be placed over paved surfaces or within staging areas; portable toilets will not be placed within the creek or riparian corridor.
- All human-generated trash at the project site shall be disposed of in proper containers and removed from the work site and disposed of properly at the end of each workday. All construction debris and trash shall be removed from the work area upon completion of the project.
- Equipment vehicles (dozers, mowers etc.) shall be cleaned of weed seeds prior to use in the project area to prevent the introduction of weeds. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily

especially wheels, undercarriages, and bumpers. Prior to leaving the project area, for vehicles that have caked-on dirt or mud, vehicles shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles may subsequently be washed at the AAFES car wash or approved wash area. For vehicles with dry dusted dirt on vehicles (and no caked-on dirt or mud), prior to leaving a site at a designated exit area, equipment vehicles shall be thoroughly brushed; vehicles may alternatively be air blasted on site. Prior to use, all equipment will be inspected for weed seeds and debris by a qualified biological monitor who may refuse use of equipment that does not pass inspection.

- Equipment vehicles should minimize work in riparian and wet/ponded areas during the dry season; avoid work in the riparian during the wet season. If any equipment vehicles enter the riparian and wet areas on a regular basis during construction activities, protective matting such as Dura-Base mats that are designed for wetland protection shall be used to cross moist riparian and wet/ponded areas.
- The Air Force would ensure equipment operating within the hydrologic floodplain/riparian area is placed on protective mats to prevent contamination of the creek bed. Air Force would require vehicles to be maintained and stored outside of the hydrologic floodplain, in the staging areas, to avoid the potential for inadvertent spills into the creek and riparian areas. Fueling of equipment will be conducted in a predesignated location within the designated laydown areas at least 100 ft (30.5 m) from the top of the bank, outside of the live stream, and spill containment materials will be placed around the equipment before refueling. Stationary equipment (e.g., cranes) will be outfitted with drip pans and hydrocarbon absorbent pads. If it is necessary to refuel or repair equipment within the riparian corridor, a USFWS-qualified biologist will be present to monitor activities, and secondary containment will be used to minimize the risk of spills.
- A qualified biologist shall inspect any equipment left overnight prior to the start of work. Equipment would be checked for presence of special-status species in the vicinity and for fluid leaks. All materials and equipment would be removed from the Honda Creek channel at the end of each day to the greatest extent feasible. If materials are to be staged within the bounds of the creek channel overnight, they would be ringed with exclusionary fencing.
- The Air Force would continue to remove nonnative, invasive predators encountered during survey efforts (i.e., bullfrogs [*Lithobates catesbeianus*]).
- Instream construction activities would be completed or paused and all construction equipment and materials in the hydrologic floodplain of Honda Creek would be removed prior to the onset of significant rainfall (0.2 inches within a 24-hour period).

Vegetation Resources

- To the greatest extent possible, removal of native vegetation and plant communities, particularly riparian woodland and wetland vegetation, would be minimized.

- When and where practicable, nonnative vegetation within the Proposed Action Area may be removed during project-related activities under the direction of the biological monitor.

Fish and Wildlife Resources

- To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of amphibians, the biologist(s) shall follow decontamination procedures described in the Declining Amphibian Population Task Force's Code of Practice (USFWS 2002b).
- Wildlife and special-status species, including TWG and CRLF, shall be removed from an exclusion area within the project site and relocated, within the same watershed but to a location at least 500 feet away to decrease the likelihood of recapture, utilizing the following procedures and timeline. These activities would be accomplished prior to the start of construction and only under the direct supervision of a qualified biologist.
    a. **Exclusion Area.** An exclusion area would be identified where all terrestrial and aquatic areas that will be directly impacted by construction related activities (i.e., areas requiring the removal of vegetation, placement of fill, and removal/exclusion of sensitive species). This exclusion area would encompass, at a minimum, the span of creek to be diverted through culvert pipes and any areas to be cleared or temporarily filled.
    b. Within the exclusion area, aquatic vegetation within and along the creek would be removed by hand or with hand tools as needed under supervision of a qualified biologist.
    c. All low-growing terrestrial vines, shrubs, and herbaceous plants within the exclusion area would be cut at the ground level and removed with hand tools under supervision of a biological monitor; all cleared vegetation would be transported off the site daily or stockpiled in an area inaccessible to terrestrial wildlife.
    d. The exclusion area would be encircled with minimum 3 ft (0.9 m) high silt fencing, anchored with metal T-posts, and buried along the bottom edge to the best extent possible to prevent terrestrial wildlife, including CRLF, from entering the site.
    e. **Diversion**. The predesign plan for water diversion would be to place exclusionary netting upstream and downstream of the Action Area, in coordination with biological monitor recommendations. Further, temporary diversion dams would be installed to divert water flow through one culvert while work occurs within the other culvert. The dams will be constructed so that they are watertight and direct flow through a bypass pipe that will span the Action Area. Any remaining water contained within the new diversion zone would be pumped to a water truck or infiltration pit, as needed to maintain safe working conditions.

f. After dewatering and repair are completed in one culvert, the process would be reversed for the remaining culvert. After repair of both culverts is completed, the temporary diversion dams and exclusionary nets would be removed, as coordinated with the biological monitor.

g. The diversion dams will be designed to minimize leakage of water into the Action Area. Prior similar efforts have successfully used high-density plastic sheeting, metal sheeting, and concrete to create watertight dams and seals around the bypass pipes.

h. If dewatering is necessary, pumps with screened intakes would be positioned at the lowest points along the creek bottom between the up and downstream dams (within the exclusion area) after creek flow has been successfully diverted. Dewatering of the exclusion area would commence immediately following completion of the downstream dam and successful bypass of creek flow. Effluent water would be discharged into an infiltration pit or a water truck. If necessary, an earthen barrier or silt fence would be installed at the discharge point to allow percolation and prevent surface backflow into the creek. The rate of dewatering would be monitored by the biologist so that it does not cause stranding of animals.

i. Removal and relocation of any animals remaining within the exclusion area would be conducted once the water level drops to manageable levels by a qualified biologist.

j. If the biological monitor determines necessary, following downstream dam completion and concurrent with the removal of fish (if present) and wildlife, silt fencing, or some other exclusion barrier, would be installed over the upstream and downstream dams and tied into existing wind fencing on the north and south banks to complete the fence around the exclusion area.

k. Following completion of the installation of exclusion fencing, three nights of CRLF removal surveys of the exclusion area would be conducted by qualified biologists. Any remaining pools would be netted and searched for animals and dewatered. All CRLF captured would be transported to the nearest suitable habitat outside of the exclusion area and released by a qualified biologist.

l. Once maintenance activities are completed in the first culvert, the initial diversion bypass pipe would be blocked off at the upstream dam, a bypass pipe would be installed in the first culvert, and creek flow would be diverted into the bypass pipe running through this culvert, allowing for the completion of maintenance and repair activities in the second culvert.

- The number and disposition of all special-status species encountered or relocated would be recorded. Native wildlife species, including special-status and listed species, would be removed to the nearest suitable habitat within Honda Creek, chosen at the discretion of the monitoring biologist. All animals would be held in 5-gallon buckets until release. All

animals held would be segregated by size and species such that predation would be unlikely. The holding time would be minimized to the greatest extent feasible and the health of all held animals would be continuously monitored to evaluate the need for additional measures to protect the animals, such as aeration of water in holding buckets.

- Qualified biologist(s) would permanently remove any nonnative species, such as bullfrogs or red swamp crayfish (*Procambus clarkii*), encountered within the Proposed Action Area to the maximum extent possible.
- The exclusion fencing would be inspected twice daily by qualified biologists. Prior to the start of work, fencing would be inspected for any breaches that may have been created overnight and allowed terrestrial wildlife to enter the exclusion area. At the end of the workday, the fencing would be inspected again to identify any areas that may need repair prior to nightfall. Compromised fence would be repaired immediately. If significant breaks are discovered during the morning inspection, a survey would be conducted that night to detect and remove any CRLF that may have entered the site.
- Water quality parameters (e.g., salinity, temperature, dissolved oxygen, turbidity) would be monitored prior to and throughout implementation of the Proposed Action. Sampling would be conducted weekly, starting one week prior to commencement of work within the creek channel. Measurements would be recorded 65 to 164 ft (20 to 50 m) upstream of the anticipated exclusion area and 65 to 164 ft (20 to 50 m) downstream of the anticipated exclusion area. Measurements would be taken in a manner that would avoid harassment or mortality of sensitive species.
- Restoring flow through the site would be accomplished in the following manner to avoid impacts on sensitive and listed species. All activities below would be supervised by a qualified biologist.
    a. A foam pipe pig, attached to a rope, would be inserted into the upstream end of the bypipe. Immediately following pig insertion, a net with mesh no wider than 1/16th of an inch would be secured to the upstream end of the pipe to prevent any entrance of animals into the pipe.
    b. The pig would be pulled through to the outflow of the pipe, followed immediately by affixing a net with mesh no wider than 1/16th of an inch to the downstream end of the pipe. The pipe would be considered free of animals at this point.
    c. Blocknets would be set up immediately upstream and downstream of the dams, and all animals would be removed and relocated from these areas.
    d. The downstream dam would be removed prior to removal of the upstream dam. The dam would be removed such that the pipe would be completely exposed and all accessible dam materials cleared. There may be backflow of water into the site at this point, but the blocknets would prevent animals from entering the exclusion area.
    e. The upstream dam would then be removed in the same manner as the downstream dam.

f. Pipes, culverts, and any remaining dam materials would be then removed. Upstream and downstream blocknets would be continuously maintained throughout this process until all materials have been removed from the creek.

g. Upstream and downstream blocknets would be removed allowing animals to reenter the site.

- Instream construction activities would be completed or paused and all temporary fill, water diversion, and materials placed in the creek channel would be removed prior to the onset of significant rainfall (0.5 inches within a 24-hour period).
- A contingency plan would be developed by qualified biologists familiar with the species for the recovery and salvage of special-status species, including TWG and CRLF, in the event of a local toxic spill or accidental dewatering of their habitat.
- To avoid potential project-related impacts on nesting migratory birds, if vegetation clearing is initiated during avian nesting season (February through August), a qualified biologist would conduct nesting bird surveys within 250 ft (152 m) of the Proposed Action Area prior to project initiation and vegetation-clearing activities. If nesting migratory birds are found within the Proposed Action Area, a buffer of adequate size to prevent disturbance from project-related activities (to be determined by the biological monitor) would be marked with flagging tape to avoid disturbance. The nest would be monitored to determine impacts, if any, from project-related disturbance.
- Although the Air Force has determined that there will be no effects on ESA-listed riparian birds, the Air Force as a general matter requires that any vegetation clearing occur outside of bird nesting season. Bird nesting season is from 15 February through 15 August. In addition to ensuring compliance with the Migratory Bird Treaty Act, this EPM would ensure any undetected ESA-listed birds are not present during vegetation removal. If work occurs during nesting season, a qualified biologist would conduct bird nest surveys prior to project activities. The contractor would coordinate with 30 CES/CEIEA prior to work.

Site Restoration and Weed Control Minimization Measures

- Vegetation removal would be minimized to the extent practicable and restricted to the level of the bottom substrate, with root systems of native plants and trees to be left in place wherever possible to enable vegetation to resprout quickly after completion of project activities.
- Site revegetation with native plant species and manual/mechanical weed control activities would be overseen by a qualified biological monitor. Any activity that could potentially impact listed species would be monitored by a qualified biologist.
- If water is pumped from Honda Creek for irrigation or use of a water stinger, the pump intake would be placed in a 30-gallon barrel with fine mesh (1/16th inch [0.16 cm]) screened holes to prevent listed species from entering the pump intake.

- All herbicides would be applied in accordance with the pesticide label and DoD recommendations. All applications within or adjacent to aquatic resources will use appropriately labeled products only. All pesticides applied would be DoD approved.
- Herbicide mixing would occur in nonsensitive areas in accordance with the VAFB Integrated Pest Management Plan.
- All herbicide application will occur during daylight hours.
- Drift of chemicals will be limited by not spraying when wind speeds exceed 10 mi per hour (16 km per hour) or as indicated by label instructions.
- Plant propagated for restoration planting would be inspected and ensured to be free of invasive species (e.g., Argentine ants, *Linepithema humile*).
- Glyphosate usage in and adjacent to aquatic features would adhere to the following special precautions:
    a. Glyphosate would be used with the surfactant Agri-Dex.
    b. No herbicide would be used in ephemeral aquatic habitats during the rainy season (15 October through 15 March).
    c. No herbicide would be used within 15 ft (4.6 m) of ephemeral aquatic habitats when surface water or surface saturation of soils is present.
    d. No herbicide would be used in ephemeral aquatic habitats 24 hours before or after a significant precipitation event (0.1 inches [2.5 millimeters] or more).
- No herbicide would be applied directly to water.

Cultural Resources

- In the event that previously undocumented cultural resources are discovered during maintenance activities, work will stop, and the procedures established in 36 CFR 800.13 and the VAFB Integrated Cultural Resources Management Plan shall be followed.

Earth Resources

No EPMs specific to the protection of earth resources will be required for the Proposed Action.

Hazardous Materials and Waste Management

- Hazardous materials would be procured through or approved for use by VAFB Hazardous Materials Pharmacy (HazMart). Monthly usage of hazardous materials will be reported to HazMart to meet legal reporting requirements.
- Hazardous materials would be properly stored and managed in secured areas located outside the riparian corridor.
- Chemical stockpile spill containment, if necessary, would be accomplished to minimize or preclude hazardous releases.

- Standard procedures would be used to ensure that all equipment is maintained properly and free of leaks during operation, and all necessary repairs are carried out with proper spill containment. All equipment operating within the Proposed Action Area would be inspected regularly for fluid leaks. A Spill Prevention Plan would be approved by 30 CES/CEIEC and implemented.
- The Air Force would ensure equipment operating within the hydrologic floodplain/riparian area is placed on protective mats to prevent contamination of the creek bed. The Air Force would require vehicles to be maintained and stored outside of the hydrologic floodplain, in the staging areas, to avoid the potential for inadvertent spills into the creek and riparian areas.
- Fueling of equipment would be conducted in pre-designated location within the South Staging Area at least 100 ft (30.5 m) from the top of the bank, outside of the live stream, and spill containment materials would be placed around the equipment before refueling. Stationary equipment (e.g., cranes) would be outfitted with drip pans and hydrocarbon absorbent pads. Additionally, 40 CFR 112, *Spill Prevention, Control, and Countermeasure Plan*, requires that tanks and containers have secondary containment or tanks double walled. If it is necessary to repair equipment within the riparian corridor, a USFWS-qualified biologist would be present to monitor activities.
- All hazardous materials would be properly identified and used in accordance with manufacturer specifications to avoid accidental exposure to or release of hazardous materials required to operate and maintain construction equipment.
- Hazardous waste shall be managed in accordance with the Hazardous Waste Management Plan (HWMP), 30 SW Plan 32-7043-A. A Community Awareness Emergency Response form would be completed and submitted to 30 CES/CEIEC within 24 hours of a hazardous materials spill or release.

Coastal Zone Management

- The Air Force shall coordinate the Proposed Action with the CCC in compliance with the CZMA.

Solid Waste

- The excavation waste (i.e., vegetation removed from the Proposed Action Area) would be hauled to a municipal landfill and disposed of as green waste to be composted. Other possible waste, such as damaged gabion mesh, would be recycled if possible.
- Debris shall be segregated to facilitate subsequent pollution prevention (P2) options. P2 options would be exercised in the following order: reuse of materials, recycling of materials, and then regulatory compliant disposal.
- All solid waste disposal and construction and demolition (C&D) debris recycling tonnages would be tracked and reported to 30 CES/CEIEC on a quarterly basis during the demolition portion of the project.

Transportation

- Employees may be encouraged to carpool and eat lunch on the site.
- Truck trips should be scheduled during nonpeak traffic hours to the greatest extent practicable.

Water Resources

- Erosion and sediment control measures such as silt fences, fiber rolls, erosion control blankets will be in place throughout construction until all disturbed areas are permanently stabilized.
- Exposed soils will be permanently stabilized to prevent erosion.
- Only nonplastic, 100 percent biodegradable erosion control materials would be left in place following project completion.
- Site restoration shall meet the CWA Section 401 and Section 404 water quality certification mitigation requirements.
- BMPs to prevent discharge of waste (construction materials, contaminants, washings, fuels, and oils) shall include the following measures:
    a. Ensure all equipment is properly maintained and free of leaks during operation, and all necessary repairs carried out with proper spill containment.
    b. Place stationary equipment operating within the hydrologic floodplain/riparian area on protective mats to prevent contamination of the creek bed. Maintain vehicles outside of the hydrologic floodplain, in the staging areas, to avoid the potential for inadvertent spills into the creek and riparian areas.
    c. Fueling of equipment would be conducted in a predesignated location within the South Staging Area at least 100 ft (30.5 m) from the top of the bank, outside of the live stream; spill containment materials would be placed around the equipment before refueling. Stationary equipment (e.g., cranes) would be outfitted with drip pans and hydrocarbon absorbent pads. If it is necessary to refuel or repair equipment within the riparian corridor, a USFWS-qualified biologist would be present to monitor activities, and secondary containment would be used to minimize the risk of spills.
    d. Adequate spill response supplies shall be maintained at the construction staging area for immediate response and cleanup of any fuel spills.
    e. Hazardous materials shall be stored in proper containers, covered prior to rain events, within the staging areas outside the creek bed.
    f. Properly manage curing compound, grout waste, and washout water to prevent pollution. Contain grout washout water for evaporation in a temporary pit in the staging area or washout trucks off-base.
    g. Vehicle and equipment washing shall be prohibited except within staging areas. High-pressure washing of undercarriages and wheel wells shall be prohibited at the project site.

h. Trash will be contained and regularly disposed of daily. Any trash that escapes from containers shall be collected daily.

i. Loose construction materials and stockpiled waste material shall be contained and protected from wind and rain at all times unless actively being used.

j. Portable toilets shall have secondary containment and be secured to the ground to prevent falling.

- Any dewatering required would be discharged to grade in an infiltration pit or a water truck in a manner that would not cause erosion or surface backflow into the creek.

Human Health and Safety

- The construction contractor would comply with Occupational Safety and Health Administration (OSHA) and Air Force Occupational Safety and Health (AFOSH) regulations and other recognized standards and applicable Air Force regulations or instructions.
- Restricted public access to the proposed construction site would be provided through use of signs and fencing if feasible.
- The contractor must also provide for the health and safety of workers and all subcontractors who may be exposed to their operations or services. The contractor must submit a health and safety plan to the base and appoint a formally trained individual to act as safety officer. The appointed individual would be the point of contact on all problems involving job site safety.
- During performance of work, the contractor must comply with all provisions and procedures prescribed for the control and safety of personnel and visitors to the job site.

2.2 No Action Alternative

Under the No Action Alternative, repairs and corrosion prevention would not be conducted on the Honda Creek culverts. Implementing the No Action Alternative has the potential to result in a detrimental impact on the VAFB mission if Coast Road collapses or becomes undermined in the future. In addition, road collapse, damage, or emergency repairs would have the potential for significant impacts on special-status species and potential WOTUS, including jurisdictional wetlands. Under the No Action Alternative, VAFB would continue maintenance and emergency repairs to the culverts, as necessary.

2.3 Alternatives to the Proposed Action Considered and Eliminated from Further Analysis

2.3.1 *Complete Removal of Existing Culverts*

The complete removal of the existing culverts and replacement with new culverts was considered. However, this alternative was eliminated from further analysis as there would be an increased disturbance in the creek and surrounding areas during the project, including

disturbance to threatened and endangered species, aquatic habitat, and potential WOTUS and WOTS. Therefore, this alternative was eliminated from further consideration.

2.3.2 *Construction of a New Permanent Access Road from Outlet Side*

Under this alternative, the Air Force would construct approximately 910 LF of new permanent access road from the outlet side, with a width of approximately 24 feet, at the end of the existing 2,900 LF of the existing access road that comes off the west of Coast Road and proceeds north. Compacted backfill materials (sand, native fill, and road base) would be used to create a ramp to transition from the existing road elevation to the beach level elevation. The new permanent access road would also require fill materials along its route to bring it to grade. Existing vegetation and debris near the east end of the new permanent access road would be cleared and grubbed. After the completion of the new permanent access road, the Air Force would conduct annual inspections to maintain the access road in good condition. Additional vegetation clearing and invasive species treatment may be required on an annual basis, depending on the rate of regrowth, and additional fill may be needed. As part of this alternative, two upland staging areas were considered at and near the borrow pit area near Honda Point/Destroyer Rock. This alternative was eliminated from further analysis as there would be increased construction and maintenance costs associated with a permanent access road, and permanent impacts to vegetation would require additional mitigation through further habitat restoration.

2.3.3 *Access from the East Side*

Under this alternative, the Air Force would access the existing culverts from the east and would use two upland staging areas at and near the borrow pit area near Honda Point/Destroyer Rock. However, this alternative was eliminated from further analysis as there would be an increased disturbance in the creek and 100-year floodplain during the project, including disturbance to threatened and endangered species, particularly CRLF, aquatic habitat, and potential WOTUS and WOTS. In addition, this alternative has the potential to affect a known cultural resources site. Therefore, this alternative was eliminated from further consideration.

2.3.4 *Access from the West Side through Honda Creek and the Lagoon*

Under this alternative, the Air Force would access the existing culverts for repair from the west through Honda Creek and the lagoon. As part of this alternative, the Air Force also considered establishing temporary staging areas within the small estuary at the mouth of Honda Creek. However, this alternative was eliminated from further analysis as there would be an increased disturbance in the creek and lagoon during the project, including disturbance to CRLF, aquatic habitat, and potential WOTUS and WOTS. Therefore, this alternative was eliminated from further consideration.

3.0 AFFECTED ENVIRONMENT

This chapter describes the existing environment near and within the Proposed Action Area for the Proposed Action and No Action Alternative. The area considered for most resources was confined to the immediate Proposed Action Area. For some environmental resources, a wider regional area was used, as appropriate.

The resources identified for analysis in this EA include: air quality, biological resources, cultural resources, earth resources, hazardous materials and hazardous waste management, solid waste management, human health and safety, coastal zone management, transportation, and water resources.

The following resources were considered but not analyzed in this EA:

- **Environmental Justice.** Per EO 12898, *Environmental Justice*, the potential effects of the Proposed Action on minority communities and low-income communities were considered. The project would neither affect nor disproportionately affect low-income or minority populations. The Proposed Action would occur within an unpopulated area of VAFB, and potential environmental impacts would not extend into populated areas.
- **Socioeconomics.** Implementing the Proposed Action could result in the creation of some temporary new jobs. However, these potential new jobs would have no effect on the socioeconomic environment of the region (i.e., Lompoc Valley and Santa Maria Valley). Implementing the No Action Alternative would neither create nor eliminate jobs from the regional area.
- **Land Use and Aesthetics.** The Proposed Action does not include any change in the land use or aesthetics of the project area; it only proposes to repair existing structures, not adding to or replacing them. Therefore, the Proposed Action does not include any component that would impact land use and aesthetics, and this resource section is not carried forward for analysis in this EA.

VAFB is located in northwestern Santa Barbara County, where agriculture is the main economic and land use influencer. VAFB encompasses approximately 99,099 ac (40,104 ha) and is physically divided into North VAFB and South VAFB by the Santa Ynez River. Much of VAFB is open space set aside as security or safety buffer zones for space launch activities. The Proposed Action Area is located along Coast Road, a major, paved artery connecting sites along the western edge of VAFB on South Base (see Figure 1-2). This area lies within the Santa Maria Basin-San Luis Range domain of central California, a geologic transition zone between the Transverse Ranges Geomorphic Province to the south and the Coast Ranges Geomorphic Province to the north.

Where it crosses Honda Creek, two culverts convey water under the road and into the small estuary at the mouth of Honda Creek (aka Cañada Honda Creek). Honda Creek is an 8.4 mi long (13.52 km long) perennial east- to west-running stream entirely on South VAFB that may occasionally run dry during extended drought periods (Air Force 2015). The mouth of Honda

Creek terminates in a small estuary with a pocket beach and ultimately connects to the Pacific Ocean. Inland from the coast, Honda Creek lies at the bottom of a steep-sided canyon that drains a large portion of South VAFB. The creek is crossed near the estuary by two major transportation corridors: Coast Road and the Union Pacific Railroad. The railroad crosses over the deep canyon via a trestle, but Coast Road was built over two 13 ft (4.0 m) diameter, 330 ft (101 m) long culverts that are subject to siltation and accumulation of debris (see Figure 1-2). Currently, during normal stream flow, only the northern culvert conveys water as the southern passage has accumulated a large amount of silt (see Figure 1-3).

3.1 Air Quality

3.1.1 *Definition of Resource*

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern with respect to the health and welfare of the general public, vegetation, and property. Six major pollutants of concern, called "criteria pollutants," are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended and fine particulate matter (particulate matter less than 10 micrometers [PM_{10}] and particulate matter less than 2.5 micrometers [$PM_{2.5}$]), and lead (Pb). The USEPA has established National Ambient Air Quality Standards (NAAQS) for these pollutants (Table 3-1). Areas that exceed a federal air quality standard are designated as nonattainment areas. Nonattainment areas for some criteria pollutants are further classified, depending upon the severity of their air quality problem, to facilitate their management:

- O_3 – marginal, moderate, serious, severe, and extreme
- CO – moderate and serious
- Particulate matter – moderate and serious

Ambient air quality refers to the atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. Emission considerations include the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological considerations include wind and precipitation patterns affecting the distribution, dilution, and removal of pollutant emissions. Chemical reactions can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million by volume [ppmv]).

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO_2, Pb, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O_3, NO_2, and some

particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. PM_{10} and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants condensing into fine aerosols. In general, emissions that are considered "precursors" to secondary pollutants in the atmosphere (such as reactive organic gases [ROG] and oxides of nitrogen (NO_x), which are considered precursors for O_3), are the pollutants for which emissions are evaluated to control the level of O_3 in the ambient air.

The State of California has identified four additional pollutants for ambient air quality standards: visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The CARB has also established the more stringent California Ambient Air Quality Standards (CAAQS). Areas within California in which ambient air concentrations of a pollutant are higher than the state or federal standard are considered to be nonattainment for that pollutant. Table 3-1 shows both the federal and state ambient air quality standards. Toxic air pollutants, also called hazardous air pollutants, are a class of pollutants that do not have ambient air quality standards but are examined on an individual basis when there is a source of these pollutants. The State of California has identified particulate emissions from diesel engines as a toxic air pollutant.

Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), which are known as greenhouse gases (GHGs). These gases allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Gases that trap heat in the atmosphere are often called GHGs, analogous to a greenhouse. GHGs are emitted by both natural processes and human activities. State law defines GHGs as any of the following compounds: CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride (California Health and Safety Code Section 38505(g)). GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "measure of the total energy that a gas absorbs over a particular period of time (usually 100 years), compared to carbon dioxide" (USEPA 2016). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 298. CO_2, followed by CH_4 and N_2O, are the most common GHGs that result from human activity. CO_2, and to a lesser extent, CH_4 and N_2O, are products of combustion and are generated from stationary combustion sources as well as vehicles. High GWP gases include GHGs that are used in refrigeration/cooling systems such as chlorofluorocarbons and HFCs.

To calculate carbon dioxide equivalent (CO_2e), the weighted amount of CO_2, CH_4, and N_2O released in terms of a single value based on their GWP, the following formula is used:

$$CO_2e = (CO_2 \times 1) + (CH_4 \times 25) + (N_2O \times 298)$$

Table 3-1. Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
O_3	1 hour	-	-	0.09 ppm
	8 hours	0.070 ppm	Same as primary	0.070 ppm
Respirable Particulate Matter (PM_{10})	24 hours	150 µg/m^3	Same as primary	50 µg/m^3
	Annual arithmetic mean	-	-	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 hours	35 µg/m^3	Same as primary	-
	Annual arithmetic average	12 µg/m^3	15 µg/m^3	12 µg/m^3
CO	1 hour	35 ppm	-	20 ppm
	8 hours	9 ppm	-	9 ppm
NO_2	1 hour	100 ppb	-	0.18 ppm
	Annual arithmetic average	53 ppb	Same as primary	0.030 ppm
SO_2	1 hour	75 ppb	-	0.25 ppm
	24 hours	-		0.04 ppm
Pb	30-day average	-	-	0.15 µg/m^3
	Rolling 3-month average	0.15 µg/m^3	Same as primary	-
Hydrogen Sulfide (HS)	1-hour	No federal standards		0.03 ppm (42 µg/m^3)
Sulfates (SO_4)	24-hour			25 µg/m^3
Visibility Reducing Particles	8-hour (10 am to 6 pm, Pacific Standard Time)			In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.
Vinyl chloride[6]	24 Hour			0.01 ppm (26 µg/m^3)

[1] NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

[2] California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[4] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[5] Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

[6] The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Notes: µg/m^3 = micrograms per cubic meter, CAAQS = California Ambient Air Quality Standards, CO = carbon monoxide, HS = hydrogen sulfide, NAAQS = National Ambient Air Quality Standards, NO_2 = nitrogen dioxide, O_3 = ozone, Pb = lead, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, ppb = parts per billion, ppm = parts per million, SO_2 = sulfur dioxide, SO_4 = sulfates; CARB = California Air Resources Board
Source: CARB 2015

3.1.2 *Regional Setting*

VAFB is within Santa Barbara County and under the jurisdiction of the SBCAPCD. The SBCAPCD is the agency responsible for the administration of federal and state air quality laws, regulations, and policies in Santa Barbara County, which is within the South Central Coast Air Basin (SCCAB). The SCCAB includes San Luis Obispo, Santa Barbara, and Ventura counties.

The SCCAB, and all of Southern California, lies in a semipermanent high-pressure zone of the Eastern Pacific Region. The coast is characterized by sparse rainfall, most of which occurs in the winter season and hot, dry summers, tempered by cooling sea breezes. In Santa Barbara County, the months of heaviest precipitation are November through April, averaging 14.7 inches annually. The mean temperature in the VAFB area, as reported by monitors in Lompoc, is 58.3 degrees Fahrenheit (°F) and the mean maximum and mean minimum temperatures are 69.6°F and 47.0°F, respectively (Western Regional Climatic Center 2016).

Santa Barbara County is classified as an attainment/unclassified area for the NAAQS for all criteria pollutants. Santa Barbara County is considered a nonattainment area for the CAAQS for ozone and PM_{10} by the SBCAPCD although the CARB has not made a final designation on this attainment status. CARB met on 25 February 2021 to consider proposed amendments to area designations for state ambient air quality standards. One of the proposed amendments would redesignate Santa Barbara County as nonattainment for Ozone. Santa Barbara County is currently considered in attainment for all other criteria pollutants.

The CARB and SBCAPCD operate a network of ambient air monitoring stations throughout Santa Barbara County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest active ambient monitoring station to the project site is the Lompoc South H Street monitoring station. The Lompoc South H Street monitoring station measures all criteria pollutants. The VAFB monitoring station at the STS Power site was closed in 2019; however, it provides historical data for O_3, PM_{10}, CO, NO_2, and SO_2.

For the period from 2015 through 2019, the 1-hour CAAQS for ozone was not exceeded at either the VAFB or Lompoc H Street monitoring stations. The 8-hour NAAQS and CAAQS for

ozone was exceeded once in 2015 at the VAFB monitoring station. At the Lompoc H Street monitoring station, the 24-hour PM_{10} CAAQS was exceeded 16 times in 2017, 2 times in 2018, and 3 times in 2019. At the VAFB monitoring station, the 24-hour PM_{10} CAAQS was exceeded 14 times in 2016, 35 times in 2017, and 4 times in 2018. The 24-hour PM_{10} NAAQS was exceeded twice in 2017 and four times in 2016 at the VAFB monitoring station, and once in 2015 at both monitoring stations. The 24-hour $PM_{2.5}$ NAAQS was exceeded twice in 2018 and four times in 2017 at the Lompoc H Street monitoring station. In 2020, at the time this was written, there have been two exceedances of state 24-hour PM_{10} and one exceedance of federal 24-hour $PM_{2.5}$ at the Lompoc H Street monitoring station. The data from the monitoring stations indicate that air quality is in attainment for all other state and federal standards (CARB 2020b).

3.1.3 *Region of Influence*

Specifically identifying the region of influence (ROI) for air quality requires knowledge of the type of pollutant, emission rates of the pollutant source, proximity to other emission sources, and local and regional meteorology. For inert pollutants (all pollutants other than O_3 and its precursors), the ROI is generally limited to a few miles downwind from the source. However, for photochemical pollutant such as O_3, the ROI may extend much farther downwind. O_3 is a secondary pollutant that is formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors (ROG and NO_x). The maximum effect of precursors on O_3 levels tends to occur several hours after the time of emission during periods of high solar load and may occur many miles from the source. O_3 and O_3 precursors transported from other regions can also combine with local emissions to produce high local O_3 concentrations. The ROI for the Proposed Action includes the SCCAB.

3.1.4 *Federal Requirements*

Clean Air Act, General Conformity, and NEPA

The USEPA is the agency responsible for enforcing the Clean Air Act (CAA) of 1970 and its 1977 and 1990 amendments. The purpose of the CAA is to establish NAAQS, to classify areas as to their attainment status relative to the NAAQS, to develop schedules and strategies to meet the NAAQS, and to regulate emissions of criteria pollutants and air toxics to protect public health and welfare. Under the CAA, individual states are allowed to adopt ambient air quality standards and other regulations, provided they are at least as stringent as federal standards. The CAA Amendments (CAAA) (1990) established new deadlines for achievement of the NAAQS, dependent upon the severity of nonattainment.

The USEPA requires each state to prepare a State Implementation Plan (SIP), which describes how that state will achieve compliance with the NAAQS. A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with all federal air quality standards.

The CAAA also requires that states develop an operating permit program that would require permits for all major sources of pollutants. The operating permit program requires permits for all major sources of pollutants.

- **New Source Review.** A New Source Review is required when a source has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specified major source thresholds (100 or 250 tons per year) which are predicated on a source's industrial category. Through the SBCAPCD's permitting processes, all stationary sources are reviewed and are subject to a New Source Review process.

- **EO 13990**: This EO, *Climate Crisis; Efforts to Protect Public Health and Environment and Restore Science*, was signed by President Biden on 20 January 2021. This EO directs all executive departments and agencies to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years that conflict with these important national objectives, and to immediately commence work to confront the climate crisis. In addition, this EO revokes several EOs including:

    - EO 13834, *Efficient Federal Operations,* except for Section 6. Duties of the Federal Chief Sustainability Officer, Section 7. Duties of Heads of Agencies, and Section 11. General Provisions.

    - EO 13783, *Promoting Energy Independence and Promoting Economic Growth*

- **General Conformity.** Under 40 CFR 93 and the provisions of Part 51, Subchapter C., Chapter I, Title 40, Appendix W of the CFR, of the CAA as amended, federal agencies are required to demonstrate that federal actions conform to the applicable SIP. The USEPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas. Santa Barbara is an unclassified/attainment area for all NAAQS. The general conformity rule does not apply to the Proposed Action at VAFB.

Local Requirements

As indicated previously, in Santa Barbara County the SBCAPCD is the agency responsible for administering the federal and state air quality laws, regulations, and policies. Included in the local air districts' tasks are monitoring air pollution, maintenance of air quality standards through programs to control air pollutant emissions and promulgating rules and regulations. SBCAPCD regulations require that facilities building, altering, or replacing stationary equipment that may emit air pollutants obtain an authority to construct permit. Further, SBCAPCD regulations require stationary sources of air pollutants to obtain a permit to operate. The local air districts are responsible for the review of applications and for the approval and issuance of these permits. It is not anticipated that the Honda culvert installation project would require any permits. In addition, the SBCAPCD regulations require a stationary source that would emit 25 tons per

year or more of any pollutant except CO in any calendar year during construction to obtain emission offsets.

3.2 Biological Resources

3.2.1 *Region of Influence*

The existing biological setting includes the regional setting of VAFB, the specific Proposed Action Area, and past and present disturbances in and near the Honda culvert repair project site. Biological resources on VAFB are abundant and diverse compared to other areas of California because VAFB is within an ecological transition zone where the northern and southern ranges of many species overlap, and because the majority of the land within the base's boundaries has remained undeveloped. The ROI considered in this EA for biological resources encompasses the Proposed Action Area (see Figure 2-1).

The Honda culverts are located below Coast Road, which is the major, paved artery connecting facilities along the western edge of VAFB on the South Base. Where it crosses Honda Creek, two culverts convey water under the road and into the small estuary lagoon at the mouth of Honda Creek. The estuary is situated on a small pocket beach and ultimately connects to the Pacific Ocean. The Union Pacific Railroad crosses the estuary via a trestle. Honda Creek extends 8.4 mi (13.52 km) east of the estuary with its channel located entirely on South VAFB. Honda Creek is a perennial stream but does occasionally run dry during extended drought periods (Air Force 2015).

The culvert repair project will entail use of existing roads and laydown areas, as well as construction of temporary laydown areas and temporary access routes (see Figure 2-1). A total of 6,840 SF (635 m^2) of laydown areas will be constructed. The proposed access route connecting the existing road to the work sites at the top and bottom of the culvert will be 24 ft (7.3 m) wide and 910 ft (277.4 m) long. An area of approximately 2,788 SF (259 m^2) will be cleared at the intake end of the culverts.

3.2.2 *Methodology*

Biological resources in the vicinity of the Proposed Action Area were characterized based on a review of VAFB geographic information system (GIS) data, available documents for the Proposed Action, and field assessments conducted by ManTech SRS Technologies in support of the Proposed Action (ManTech SRS Technologies 2020). Complete lists of plant and wildlife species documented within the Proposed Action Area can be found in Appendix E. Potential occurrence of special-status and sensitive species was determined based on the presence of suitable habitat or records of occurrence of the species. Sources accessed and reviewed to determine the potential for occurrence included the California Natural Diversity Database (California Department of Fish and Wildlife 2020) and existing local and regional references.

3.2.3 *Vegetation*

Vegetation types were classified across VAFB in 2009 using a modified Holland system (Wildscape 2009). Potentially hydric vegetation types and boundaries were confirmed during jurisdictional wetland determination field surveys conducted in spring 2020 (ManTech SRS Technologies 2020). Upland vegetation type boundaries were refined during summer 2020 field assessments and the overall area of vegetation communities within the area surveyed is provided in Table 3-2. Vegetation within the Proposed Action Area is comprised of a mix of riparian and upland types (Figure 3-1). The Proposed Action would disturb approximately 4.50 ac (1.82 ha). Table 3-2 provides areas of each vegetation community anticipated to be impacted by project activities within the Proposed Action Area.

Table 3-2. Vegetation Types within the Survey Area and the Proposed Action Area

Vegetation Type	Proposed Action Area		Survey Area	
	Acres	Hectares	Acres	Hectares
Acacia	0.19	0.08	2.23	0.9
Central Coastal Arroyo Willow Riparian Forest and Scrub	0.39	0.16	2.05	0.83
Central Coastal Scrub	0.08	0.03	4.3	1.74
Central Coastal Scrub/Iceplant	0.50	0.20	4.65	1.88
Coastal and Valley Freshwater Marsh	0.04	0.02	0.33	0.13
Coastal Bluff	0.06	0.02	1.33	0.54
Coastal Salt Marsh	0.15	0.06	0.55	0.22
Coastal Strand	0.14	0.06	1.69	0.69
Developed	1.27	0.51	1.58	0.64
Disturbed/Cleared	0.73	0.30	1.31	0.53
Foredune	0.11	0.04	0.2	0.08
Iceplant	0.25	0.10	4.11	1.66
Iceplant – Herb	0.26	0.10	3.08	1.25
Nonnative Grasses and Forbs	0.32	0.13	2.5	1.01
Ocean	0.00	0.00	1.32	0.53
Open Water	0.03	0.01	0.55	0.22
TOTALS	**4.50**	**1.82**	**31.75**	**12.85**

Acacia

Within the survey area, the slope abutting the north side of Honda Creek supports the most extensive area of this vegetation type. Long-leafed acacia (*Acacia longifolia*), a nonnative species planted historically for soil stabilization, is the dominant component. Where canopy is dense, it forms a monoculture. Where the canopy is open, it grows intermixed with other nonnative species such as iceplant (*Carpobrotus* sp.) and veldt grass (*Ehrharta calycina*) within the survey area.

Central Coast Arroyo Willow Riparian Forest and Scrub

This vegetation type occurs in areas of perennial moisture including within the riparian corridor associated with Honda Creek. Arroyo willow (*Salix lasiolepis*) is the dominant overstory species within the survey area. Surface water may or may not be associated with this vegetation type. Where associated with Honda creek, this vegetation type qualifies as potential WOTS.

Central Coast Scrub

This vegetation type occurs throughout the survey area on flats and slopes with relatively consolidated soils where it is dominated by soft woody medium stature shrub species. Dominant species within the survey area include coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), and poison oak (*Toxicodendron diversilobum*). Seacliff buckwheat (*Eriogonum parvifolium*) is also a common component of this vegetation type.

In areas that are subjected to semiregular or historic disturbance, central coastal scrub intergrades with nonnative vegetation, forming mixed vegetation types such as central coastal scrub/iceplant. The iceplant component is composed of *Carpobrotus* spp.

Coastal and Valley Freshwater Marsh

This vegetation type occurs in channels with perennially or seasonally saturated soil. Within the survey area, freshwater marsh was characterized by an arroyo willow overstory and watercress (*Nasturtium officinale*), sword leaved rush (*Juncus ensifolius*), and bulrush (*Bolboschoenus maritimus*). Depending on landscape setting and associated soils and hydrology, areas supporting this vegetation type qualify as potential jurisdictional federal and state wetlands and/or WOTUS within the survey area.

Coastal Bluff

This vegetation type occurs on coastal bluffs overlooking the Pacific Ocean and is dominated by low-growing native and nonnative forbs and grasses. Within the survey area, this vegetation type is sparsely vegetated and occurs on west-facing slopes north of Honda Canyon as well as the north and south slopes framing the Honda Creek estuary. Dominant species include iceplant, beach bursage (*Ambrosia chamissonis*), and common sand aster (*Corethrogyne filaginifolia*).

Coastal Salt Marsh

This vegetation type occurs east of the Honda Creek estuary and west of Coast Road bordering Honda Creek. Fleshy jaumea (*Jaumea carnosa*) and salt grass (*Distichlis spicata*) are dominant components. Depending on landscape setting and associated soils and hydrology, areas supporting this vegetation type qualify as potential jurisdictional federal and state WOTUS within the survey area.

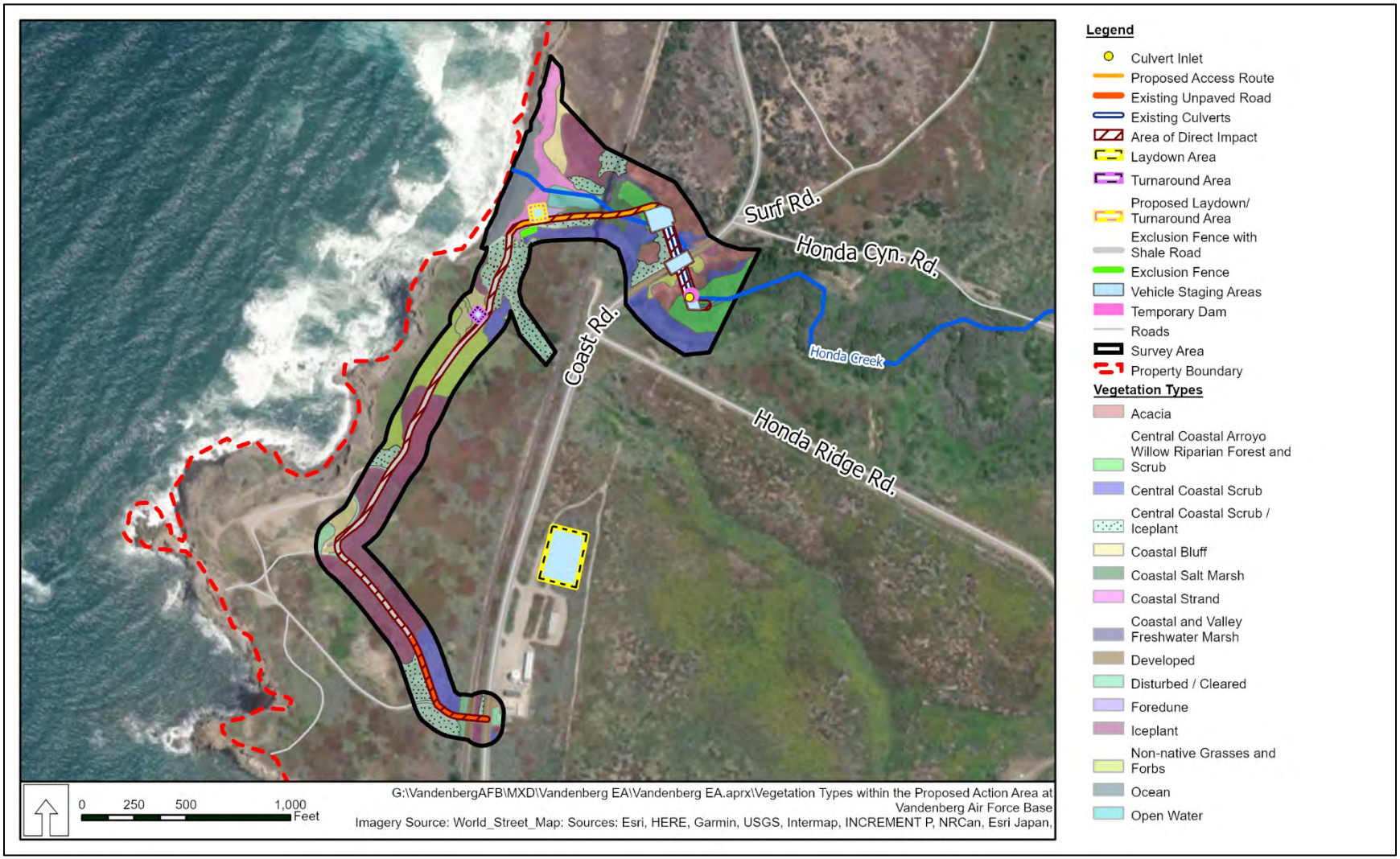

Figure 3-1. Vegetation Types within the Proposed Action Area at Vandenberg Air Force Base

Coastal Strand

This habitat is unvegetated and consists of loose sand subject to the ebb and flow of the tides of the Pacific Ocean.

Developed

Developed areas within the survey area consist of abiotic habitats such as paved or graveled roadways, buildings, parking lots and other human-made structures. Where not subjected to regular use (such as the proposed laydown area) weedy nonnative species have colonized cracks in the pavement.

Disturbed/Cleared

Disturbed/cleared or anthropogenic habitat consists of dirt roads, unpaved pullouts, and unpaved roadsides. The Proposed Action Area is adjacent to paved and disturbed surfaces. Vegetation in disturbed habitats are predominately nonnative annual grasses and forbs although low-growing, disturbance-tolerant native species such as seacliff buckwheat have colonized the central portion of some trails within the proposed Action Area between wheel ruts.

Foredune

Foredune habitat occurs on loose sandy soils abutting the east end of the Honda Creek estuary. Vegetation is patchy, with beach bursage forming the dominant component within the survey area.

Iceplant

Iceplant is in the family Aizoaceae and was originally imported from South Africa for landscaping and soil stabilization. In the iceplant vegetation type, it forms large, dense, near-monotypic mats. In the survey area, it may co-occur with other nonnative Aizoaceae such as crystalline iceplant (*Mesembryanthemum crystallinum*) and New Zealand spinach (*Tetragonia tetragonioides*).

In areas where iceplant co-occurs with other herbaceous nonnative species within the survey area, an iceplant – herb vegetation type is formed. Co-occurring herbaceous species include Bermuda buttercup (*Oxalis pes-caprae*), wild radish (*Raphanus sativus*), and ripgut brome (*Bromus diandrus*).

Nonnative Grasses and Forbs

This vegetation type occurs most commonly in areas that have been subjected to prior disturbance allowing weedy nonnative species adapted to frequent disturbance to invade and dominate a site. Within the survey area, it occurs intermixed with iceplant-dominated vegetation types bordering the access road and on the eastern side of Coast Road where it crosses Honda Creek. Bordering the access road, dominant species include Bermuda buttercup and New Zealand spinach. On the eastern side of Coast Road, veldt grass is the dominant component.

Ocean and Open Water

These habitats are unvegetated. The ocean habitats within the survey area are those regularly covered by wave action from the Pacific Ocean. Open water habitat within the survey area includes unvegetated inundated areas of the Honda Creek estuary and channel.

3.2.4 *General Wildlife Resources*

A variety of common bird species are associated with the Proposed Action Area and adjacent habitats including birds associated with riparian, scrub, and beach habitat. In riparian habitat, species such as song sparrow (*Melospiza melodia*), Wilson's warbler (*Cardellina pusilla*), and Allen's hummingbird (*Selasphorus sasin*) would be expected within the Proposed Action Area. At the beach, a variety of shorebirds, including sanderling (*Calidris alba*), marbled godwit (*Limosa fedoa*), long-billed curlew (*Numenius americanus*), and willet (*Tringa semipalmata*) may be present at various times of the year. California gulls (*Larus californicus*) and western gulls (*Larus occidentalis*) are also common in the area.

Amphibians that may occur at the site include lungless salamanders such as the arboreal salamanders (*Aneides lugubris*), the black-bellied slender salamander (*Batrachoseps nigriventris*), and an undescribed species of slender salamander (*Batrachoseps* sp.) known only from the vicinity of the Destroyer Rock and Point Arguello on VAFB (ManTech SRS Technologies 2012). Reptile species expected to occur within the Proposed Action Area include western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinata*), San Diego gopher snake (*Pituophis catenifer annectens*), and southern pacific rattlesnake (*Crotalus oreganus helleri*).

Various mammal species are also expected to occur within the project area. Those observed during field surveys include brush rabbit (*Sylvilagus bachmani*), coyote (*Canis latrans*), and black-tailed deer (*Odocoileus hemionus hemionus*). Small mammals include various species of mice and pocket gopher (*Thomomys bottae*).

3.2.5 *Special-Status Species*

Table 3-3 lists federal and state special-status species that occur or have the potential to occur within the Proposed Action Area and its vicinity. Potential occurrence was determined based on past documentation within the vicinity of the Proposed Action Area and on suitability of habitat and occurrence within the region of a particular species. Several species were excluded from potential occurrence because they either do not occur at the site when project activities would occur, they do not breed within the Proposed Action Area and their special status affords them protection only during their breeding period, or they do not occur in a manner (rookeries or nesting colonies) that affords them special-status protection.

Table 3-3. Federal and State Special-Status Terrestrial Species with the Potential to Occur within the Proposed Action Area

Species	Status		Potential Occurrence within the Proposed Action Area
	USFWS	CDFW	
Invertebrates			
Crotch Bumble Bee (*Bombus crotchii*)	-	SCE	Potential: may nest and visit flowering plants in the Proposed Action Area
Fish			
Tidewater Goby (*Eucyclogobius newberryi*)	FE	SSC	Rare: historically present in the Honda Creek estuary
Amphibians			
California Red-Legged Frog (*Rana draytonii*)	FT	SSC	Present: documented in Honda Creek in the Proposed Action Area
Reptiles			
Northern California Legless Lizard (*Anniella pulchra pulchra*)	-	SSC	Potential: may occur in areas of loose sandy soil not subjected to tidal over wash
Two-Striped Gartersnake (*Thamnophis hammondii*)		SSC	Potential: documented in Honda Creek upstream of the Proposed Action Area
Western Pond Turtle (Actinemys *marmorata*)	-	SSC	Potential: documented in Honda Creek upstream of the Proposed Action Area
Birds			
Allen's Hummingbird (*Selasphorus sasin*)	BCC	-	Likely: may occur and nest in riparian vegetation
Bald Eagle (*Haliaeetus leucocephalus*)	BGEPA	Fully protected	Rare: may over fly the Proposed Action Area
Black Oystercatcher (*Haematopus bachmani*)	BCC	-	Potential: may fly over the Proposed Action Area
Black Skimmer (*Rynchops niger*)	BCC	-	Potential: may forage over the ocean
California Condor (*Gymnogyps californianus*)	FE	SE	Very Rare: may over fly the Proposed Action Area
Lawrence's Goldfinch (*Carduelis lawrencei*)	BCC	-	Potential: may occur and nest in riparian vegetation
Loggerhead Shrike (*Lanius ludovicianus*)	BCC	SSC	Likely: may occur and nest in riparian and scrub vegetation
Long-Billed Curlew (*Numenius americanus*)	BCC	-	Likely: may occur in coastal strand and estuarine habitat
Marbled Godwit (*Limosa fedoa*)	BCC	-	Likely: may occur in coastal strand and estuarine habitat
Nuttall's Woodpecker (*Dryobates nuttallii*)	BCC	-	Likely: may occur and nest in riparian vegetation
Peregrine Falcon (*Falco peregrinus anatum*)	BCC	Fully protected	Likely: may hunt within coastal strand and estuarine habitat

Species	Status		Potential Occurrence within the Proposed Action Area
	USFWS	CDFW	
Short-Billed Dowitcher (*Limnodromus griseus*)	BCC	-	Likely: may occur in coastal strand and estuarine habitat
Whimbrel (*Numenius phaeopus*)	BCC	-	Likely: may occur in coastal strand and estuarine habitat
Western Snowy Plover (*Charadrius nivosus*)	FT; BCC	SSC	Potential: may occur in coastal strand and estuarine habitat
Willet (*Tringa semipalmata*)	BCC	-	Likely: may occur in coastal strand and estuarine habitat
Yellow-Breasted Chat (*Icteria virens*)	-	SSC	Potential: may occur and nest in riparian vegetation
Yellow Warbler (*Setophaga petechia*)	-	SSC	Likely: may occur and nest in riparian vegetation
Mammals			
Pallid Bat (*Antrozous pallidus*)	-	SSC	Present: documented in Honda Creek in the Proposed Action Area
Townsend's Big-Eared Bat (*Corynorhinus townsendii*)	-	SSC	Present: documented in Honda Creek in the Proposed Action Area

Notes: BCC = federal bird of conservation concern, BGEPA = Bald and Golden Eagle Protection Act, CDFW = California Department of Fish and Wildlife, FE = federal endangered species, FT = federal threatened species, SCE = state candidate endangered, SE = state endangered species, SSC = state candidate species, USFWS = US Fish and Wildlife Service

Tidewater Goby (*Eucyclogobius newberryi*)

Current Status

The TWG was listed as endangered on 7 March 1994 (59 Federal Register [FR] 5494). On 24 June 1999, the USFWS proposed to remove the populations occurring north of Orange County, California, from the endangered species list (64 FR 33816). In November 2002, the USFWS withdrew this proposed delisting rule and determined to retain the TWG's listing as endangered throughout its range (67 FR 67803). The USFWS published a Recovery Plan for the TWG in 2005 (USFWS 2005). In January 2014, USFWS proposed to reclassify the TWG from endangered to threatened (79 FR 14340-14362); a decision on this proposal has not been made.

Key threats to the TWG include susceptibility of coastal lagoons to degradation through diversion of water (dewaters stream habitat, affects marsh habitats, and alters temperature and salinity), pollution from agricultural and sewage effluents, siltation (e.g., resulting from cattle overgrazing and feral pig activity), urban development of surrounding lands, and introduced predatory fish (especially centrarchids and channel catfish, crayfish, and mosquito fish, which may threaten populations through direct predation on eggs, larvae, and adults).

Critical Habitat

The USFWS issued a final rule for designation of critical habitat for the TWG on 6 February 2013 (78 FR 8745-8819). Critical habitat does not include VAFB, since it is controlled by the DoD and is exempted under section 4(a)(3) of the ESA. Further, USFWS has adopted VAFB's Integrated Natural Resources Management Plan (INRMP; Air Force 2011), prepared under section 101 of the Sikes Act (16 U.S.C. 670a).

Life History

The TWG is a small, bottom-dwelling fish found in California's coastal estuaries, wetlands, lagoons, and lower reaches of coastal streams and rivers. It is an annual species, with individuals typically not living for more than a year. TWG population size is heavily influenced by environmental conditions. In years experiencing high rains, when lagoons are breached, TWG numbers fall as fish are washed out to sea. Individuals able to access refugia, such as that provided by vegetation in lateral marshes, are able to survive flood events. These surviving individuals breed after the lagoons close, allowing populations to rebound the following summer (Swift et al. 1989). Breeding may occur year round (Swenson 1999) with peak spawning activity usually occurring during the spring and a second peak during the late summer (Swift et al. 1989).

Occurrence within the Proposed Action Area

TWG have been reported in all the major drainages on VAFB, including Shuman Creek, San Antonio Creek, Santa Ynez River, Honda Creek, and Jalama Creek (Swift et al. 1997; Figure 3-2). TWG typically favor areas within the fresh-saltwater interface and salinities of less than 12 parts per thousand (Swift et al. 1989). However, this species will range into fresh water and has been recorded up to 7.5 mi upstream from the ocean in the Santa Ynez River (Swift et al. 1997).

TWG were first found in the Honda estuary lagoon in 1995 (Lafferty et al. 1999). The species was again documented in 2001; however, seine net surveys conducted in Honda Creek in 2008 indicated that TWG were no longer present (ManTech SRS Technologies 2009). Seine net surveys were again conducted in Honda Creek in 2015 and 2016 with no TWG present.

In 2013, the estuary lagoon dried and stayed dry through 2016 before rehydrating in the winter of 2016-2017 (ManTech SRS Technologies 2018). Since 2017 the lagoon has been subject to drying during late summer months, making more than short-term occupancy by fish dependent on them being able to establish in areas east of Coast Road, but the narrowness and shallowness of the creek in this area makes this unlikely. Occurrence within the Proposed Action Area would be dependent on TWG recolonizing the lagoon if it fills and breaches in response to winter rains.

Unless environmental conditions return to a consistently wetter regime conducive to perennial water in the Honda lagoon, any TWG occupancy is likely to be of short duration.

Figure 3-2. Tidewater Goby Distribution on Vandenberg Air Force Base

California Red-Legged Frog (*Rana draytonii*)

Status

CRLF were listed as federally threatened by the USFWS on 23 May 1996 (61 FR 25813-25833). In 2002, the USFWS issued a Recovery Plan to stabilize and restore CRLF populations (USFWS 2002a).

Critical Habitat

Critical habitat was designated on 17 March 2010 (50 FR 12816-12959). Critical habitat does not include VAFB, since it was excluded under Section 4(b)(2) of the ESA, for reasons including impacts on national security.

Life History

The CRLF is a member of the family Ranidae and is California's largest native frog. In order to breed, CRLF require water bodies with sufficient hydroperiods and compatible salinity levels to accommodate larval and egg development. Breeding typically takes place from November through April with most egg deposition occurring in March. Eggs require 6 to 14 days, depending on water temperature, to develop into tadpoles. Tadpoles typically require 11 to 20 weeks to develop into terrestrial frogs (USFWS 2002a), although some individuals may overwinter in the tadpole stage (Fellers et al. 2001). Although CRLF have been documented depositing eggs in areas of higher salinity, levels of 4.5 parts per thousand (ppt) resulted in significant mortality and deformities in developing embryos (Jennings and Hayes 1990). Adult CRLF vacated areas with salinity greater than 6.5 ppt (Jennings and Hayes 1990).

In California, adult CRLF have been documented traveling distances of over 1 mile during the wet season and spending considerable time in terrestrial riparian vegetation (USFWS 2002a). It is thought that riparian vegetation provides good foraging habitat, as well as good dispersal corridors, due to canopy cover, and presence of moisture (USFWS 2002a). A study aimed at quantifying CRLF movements within a wetland management area on VAFB documented a maximum travel distance of 0.13 mi (209 m) involving an adult returning to a breeding pond (Christopher 2018). In 2017, ManTech SRS Technologies biologists found an adult CRLF in a roadside puddle 0.69 mi (1104 m) from the nearest aquatic habitat following a rain event (ManTech SRS Technologies 2019), indicating that CRLF on VAFB may be capable of long distance movements under conditions of enhanced moisture as well. In addition to riparian and wetland habitat (38% of terrestrial observations), CRLF on VAFB have been found using terrestrial forb (60% of terrestrial observations) and shrub (3% of terrestrial observations) dominated habitats (Christopher 2018). This points to a plasticity in use of upland habitat on VAFB, as long as sufficient cover is present.

Habitat loss and degradation, combined with overexploitation and introduction of exotic predators, were important factors in the decline of CRLF in the early to mid-1900s. Continuing threats to CRLF include direct habitat loss due to stream alteration and loss of aquatic habitat,

indirect effects of expanding urbanization, competition or predation from nonnative species including the bullfrog, catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquitofish, and crayfish. Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations and is considered a threat to CRLF populations.

Occurrence within the Proposed Action Area

CRLF surveys have occurred across VAFB since the early 1990s (Christopher 1996). Surveys have shown that CRLF have the potential to occur in virtually all known wetlands and bodies of water on VAFB (Figure 3-3). CRLF have been consistently documented within the Proposed Action Area (Christopher 2002; ManTech SRS Technologies 2009, 2016, 2018).

In 2013, the estuary lagoon dried and stayed dry through 2016 before rehydrating in the winter of 2016-2017 (ManTech SRS Technologies 2018). Prior to 2013, the estuary lagoon maintained consistent perennial water, with significant numbers of CRLF tadpoles occurring within the Proposed Action Area historically (Table 3-4). In 2008, 451 CRLF tadpoles were documented within sample sites in the Proposed Action Area (ManTech SRS Technologies 2009); however, when these sites were resampled in 2016, no CRLF tadpoles were present. The only CRLF tadpole found during 2016 surveys was in the pool at the east end of the culverts (this pool was not sampled during 2008; ManTech SRS Technologies 2016). In fall 2016 the Canyon Fire burned much of upper Honda Creek, and subsequent erosion during the winter of 2016–2017 eliminated much of the deep pool habitat that had formerly been present within the Proposed Action Area. Seine surveys conducted in 2017, at the same sites sampled in 2008 and 2016, found no CRLF tadpoles present. The only site supporting CRLF in the Proposed Action Area in 2017 was the pool at the east end of the culverts (ManTech SRS Technologies 2018).

In August 2020, the portion of lower Honda Creek encompassing the Proposed Action Area was surveyed for CRLF to reassess numbers and distribution in support of this EA. During this survey, 12 CRLF were documented within the Proposed Action Area, including 3 CRLF within the hydrated culvert. This represent a substantial increase from the numbers observed during 2016 and 2017 surveys. The deep pool habitat favored by CRLF had not completely reestablished in lower Honda Creek at the time of the 2020 survey. The large numbers of CRLF present may have been due, in part, to a heat wave occurring at the time of the survey: high temperatures may have forced CRLF out of the adjacent uplands and into the hydrated channel.

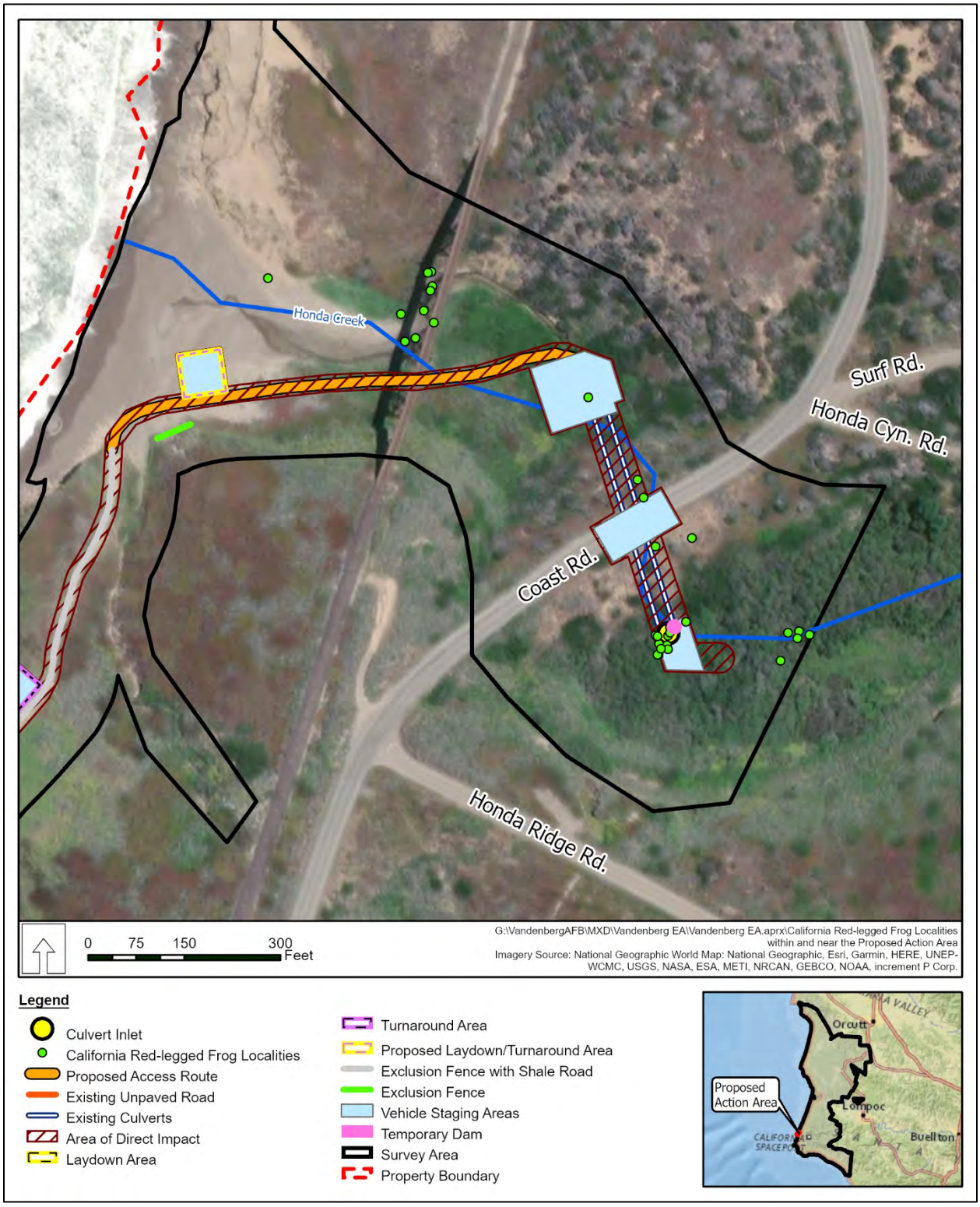

Figure 3-3. California Red-Legged Frog Localities within and near the Proposed Action Area

Table 3-4. California Red-Legged Frog Numbers within the Proposed Action Area

Date	Survey Type	Life Stage	Number
8/9/1994	Not reported	Frog	1
7/27/1995	Not reported	Tadpole	1
4/3/1997	Not reported	Egg mass	5
5/22/1997	Seine survey	Frog	1
		Tadpole	1000
2/6/2001	Night frog survey	Frog	10
10/11/2001	Night frog survey	Frog	1
5/31/2008	Seine survey	Frog	3
		Tadpole	451
6/2/2008	Night frog survey	Frog	2
6/3/2008	Night frog survey	Frog	1
7/17/2013	Night frog survey	Frog	5
7/29/2014	Night frog survey	Frog	4
5/3/2016	Night frog survey	Frog	2
7/14/2016	Seine survey	Tadpole	1
8/23/2016	Adventitious	Frog	1
3/30/2017	Night frog survey	Frog	1
6/23/2017	Night frog survey	Frog	1
7/17/2017	Seine survey	Tadpole	0
10/24/2017	Night frog survey	Frog	1
8/18/2020	Night frog survey	Frog	12

California Condor (*Gymnogyps californianus*)

Current Status

The USFWS listed the California condor as endangered on 11 March 1967 (32 FR 4001) and completed a Recovery Plan for the species on 25 April 1996 (USFWS 1996). In 1982, there were only 23 California condors in existence. To prevent the condor from becoming extinct, all remaining condors were placed into a captive breeding program in 1987. The USFWS and its partners began releasing condors back into the wild in 1992. The nearest release site to the Action Area is Bitter Creek National Wildlife Refuge (USFWS 2020). Other release points include the Los Padres National Forest near Big Sur and Pinnacles National Park (Figure 3-4). Almost all condors released into Santa Barbara County have either died or were brought back into captivity, with the last nesting attempt occurring in 2001 (Lehman 2019).

Critical Habitat

The USFWS designated critical habitat for the California condor in 1976 and revised it in 1977 (42 FR 47840). The nearest designated critical habitat for the California condor is near San Luis

Obispo, approximately 47 mi (76 km) from the Proposed Action Area (Figure 3-4). There is no critical habitat within or adjacent to the Proposed Action Area.

Life History

Condors nest in rock formations (e.g., ledges and crevices) and less frequently in giant sequoia trees (*Sequoiadendron giganteum*). They normally lay a single egg between late January and early April. Both parents incubate the egg and share responsibilities for feeding the nestlings after hatching. Condors require large remote areas and can range up to 150 mi (241 km) a day in search of food. Chicks usually take their first flight around 6 to 7 months from hatching. The cause of the California condor's decline is inconclusive, but experts believe that lead poisoning and hunting greatly contributed to their decline (USFWS 1996). California condors are opportunistic scavengers and primarily feed on dead carcasses (USFWS 1996).

Occurrence within the Proposed Action Area

The California condor's current range is not within the Proposed Action Area. However, in March 2017, the USAF learned that telemetry data from USFWS showed there was a California condor ranging within VAFB. This condor, SB 760 ("VooDoo"), was an immature, nonreproductive unpaired, female that hatched in captivity on 22 May 2014 (USFWS, personal communication, 27 March 2017). She was released near Big Sur on 9 November 2016 (Ventana Wildlife Society 2017, 2020). SB 760 was reported to have departed the VAFB area on or about 22 April 2017.

SB 760 died of drowning in northern San Luis Obispo County in July 2017 (Ventana Wildlife Society 2020), but other condors may explore the VAFB area in the future. Because of their very rare occurrence and the very limited potential for the Proposed Action to have any effect on California condor, they are not carried forward for analysis.

Western Snowy Plover (*Charadrius nivosus*)

Current Status

The USFWS listed the Pacific Coast population of the western snowy plover as federally threatened in March 1993 (58 FR 12864–12874). A Recovery Plan was issued for the Pacific Coast population of western snowy plover in 2007 (USFWS 2007).

Crititcal Habitat

The USFWS designated critical habitat for this species on 7 December 1999 and revised this designation on 29 September 2005 (70 FR 56969–57119) and again on 19 June 2012 (77 FR 36727). VAFB was exempted from the critical habitat designation under Section 4(a)(3) of the ESA on 19 June 2012.

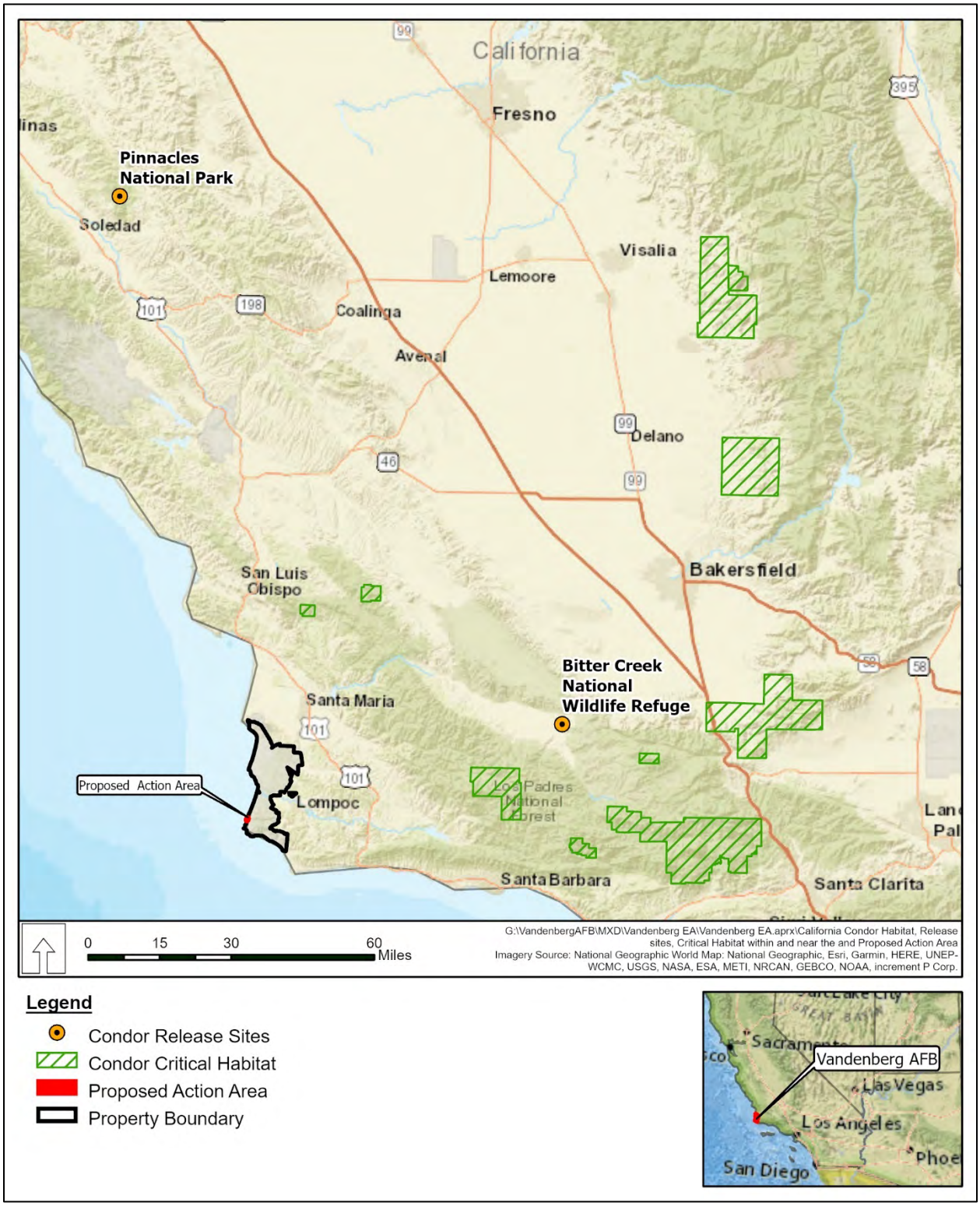

Figure 3-4. California Condor Habitat, Release Sites, Critical Habitat within and near the Proposed Action Area

Life History

The western snowy plover is a small shorebird with a pale tan back, white underparts, and dark patches on the sides of the neck reaching around to the top of the chest. The Pacific Coast population of snowy plovers is limited to individuals that nest adjacent to tidal waters. The population's range extends from southern Washington to Baja California, Mexico.

VAFB provides important breeding and wintering habitat for the western snowy plover, which includes all sandy beaches and adjacent coastal dunes from the rocky headlands at the north end of Minuteman Beach to the pocket beaches and dune areas adjacent to Purisima Point on North VAFB (approximately 7.7 mi [12.4 km]; Figure 3-5). Also included are all sandy beaches and adjacent coastal dunes from the rocky headlands at the north end of Wall Beach south to the rock cliffs at the south end of Surf Beach on South VAFB (approximately 4.8 mi [7.7 km]). VAFB has consistently supported one of the largest populations of breeding western snowy plover along the west coast of the United States (Robinette et al. 2016).

Occurrence within the Proposed Action Area

Western snowy plovers nest and overwinter along the coast of VAFB. The Proposed Action Area is not suitable western snowy plover breeding habitat because the narrowness of the beach habitat subjects it to regular tidal overwash. Wintering and nonbreeding western snowy plovers may still occasionally visit beach areas in and adjacent to the Proposed Action Area for foraging.

3.2.1 *Marine Mammals*

Three pinniped species, California sea lions (*Zalophus californianus*), northern elephant seals (*Mirounga angustirostris*), and Pacific harbor seals (*Phoca vitulina*), have been observed on rare occasions at the mouth of Honda Creek. Observations of live pinnipeds at this location are very infrequent, with California sea lion occurrences tending to correspond to domoic acid outbreaks and elephant seal occurrences corresponding to molting (R. Evans, pers. comm.). In total, fewer than 10 individuals have been observed in the past 12 years (not including deceased animals). Because of their rare occurrence and very limited potential for the Proposed Action to have any effect on marine mammals, they are not carried forward for analysis.

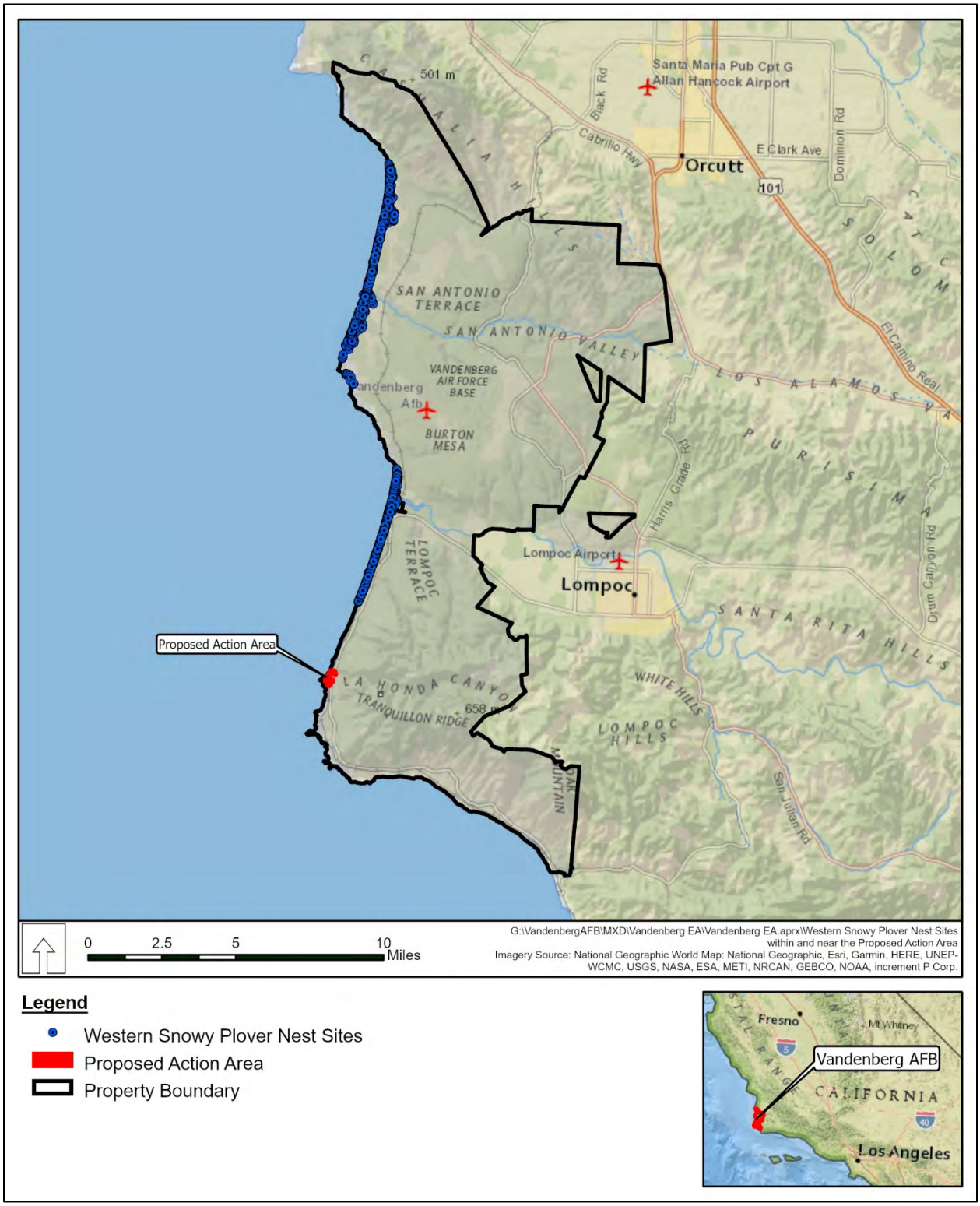

Figure 3-5. Western Snowy Plover Nest Sites within and near the Proposed Action Area

3.3 Cultural Resources

This section discusses cultural resources within the affected environment. It describes the cultural setting, known cultural resource sites and studies within the affected environment, and the environmental consequences to cultural resources.

3.3.1 *Cultural Setting*

The prehistory of California's central coast spans the entire Holocene and may extend back to late Pleistocene times. Excavations on VAFB reveal occupations dating to the Pleistocene/Holocene transition, around 11,000 years ago (Lebow et al. 2014; Lebow et al. 2015). Occupations during earliest part of the Holocene (9,000 to 10,000 years) have been identified at several sites on the base (Glassow 1990, 1996; Lebow et al. 2001, 2006, 2007; Stevens 2011). These early occupants are thought to have lived in small groups that had a relatively egalitarian social organization and a forager-type land-use strategy (Erlandson 1994; Glassow 1996; Greenwood 1972; Moratto 1984). Human population density remained low throughout the early and middle Holocene (Lebow et al. 2007). Cultural complexity appears to have increased around 3,000 to 2,500 years ago (King 1981, 1990). At VAFB, that interval also marks the beginning of increasing human population densities and appears to mark the shift from a foraging to a collecting land-use strategy (Lebow et al. 2006, 2007). Population densities reached their peak around 600 to 800 years ago, corresponding to the full emergence of Chumash cultural complexity (Arnold 1992).

People living in the VAFB area prior to historic contact are grouped with the Purisimeño Chumash (Greenwood 1978; King 1984; Landberg 1965), one of several linguistically related members of the Chumash culture. In the Santa Barbara Channel area, the Chumash people lived in large, densely populated villages and had a culture that "was as elaborate as that of any hunter-gatherer society on earth" (Moratto 1984:118). Relatively little is known about the Chumash in the Vandenberg region. Explorers noted that villages were smaller and lacked the formal structure found in the channel area (Greenwood 1978: 520). About five ethnohistoric villages are identified by King (1984: Figure 1) on VAFB, along with another five villages in the general vicinity. Diseases introduced by early Euroamerican explorers, beginning with the maritime voyages of Cabrillo in A.D. 1542–1543, substantially impacted Chumash populations more than 200 years before Spanish occupation began (Erlandson and Bartoy 1995, 1996; Preston 1996). Drastic changes to Chumash lifeways resulted from the Spanish occupation that began with the Portolá expedition in A.D. 1769.

VAFB history is divided into the Mission, Rancho, Anglo-Mexican, Americanization, Regional Culture, and Suburban periods. The Mission Period began with the early Spanish explorers and continued until 1820. Mission La Purísima encompassed the Vandenberg area. Farming and ranching were the primary economic activities at the Mission. The Rancho Period began in 1820 and continued until 1845. Following secularization in 1834, the Alta California government granted former mission lands to Mexican citizens as ranchos. Cattle ranching was the primary economic activity during this period. The Bear Flag Revolt and the Mexican War marked the beginning of the Anglo-Mexican Period (1845 to 1880). Cattle ranching continued to flourish

during the early part of this period, but severe droughts during the 1860s decimated cattle herds. The combination of drought and change in government from Mexican to the United States caused substantial changes in land ownership. Sheep ranching and grain farming replaced the old rancho system. Increased population densities characterize the Americanization Period (1880 to 1915). Beginning in the late 1890s, the railroad provided a more efficient means of shipping and receiving goods and supplies, which in turn increased economic activity. Ranching and farming continued during the early part of the period of Regional Culture (1915 to 1945), until property was condemned for Camp Cooke. The Suburban Period (1945 to 1965) began with the end of World War II. In 1956, the Army transferred 64,000 acres of North Camp Cooke to the Air Force, and it was renamed the Cooke Air Force Base. In 1958 the base had its first missile launch, the Thor, and was renamed VAFB (Palmer 1999).

3.3.2 *Area of Potential Effect*

As identified by the VAFB Cultural Resources Lead, the Area of Potential Effects (APE) includes the Project's Area of Direct Impact (ADI), where ground disturbance would occur, plus the entirety of any cultural resources intersected by the ADI (Smallwood and Ryan 2020).

3.3.3 *Cultural Resources Studies*

An archaeological site record and literature search was completed at the 30 CES/CEI at VAFB and included a review of site records, reports, and site condition assessments, and examination of Base GIS and US Geological Survey topographic maps. VAFB 30 CES/CEI staff also conducted a pedestrian survey. Background research identified 46 previous studies within 30 meters (100 feet) of the APE (Table 3-5).

Table 3-5. Previous Cultural Resource Investigations within the Project Area

Author(s)/Year (in alphabetical order)	VAFB Report No.	Report Title
US Air Force Flight Test Center (1983)	1983-11	*An Archaeological Survey of Proposed Road and Minuteman Launch Facility Modifications for the Peacekeeper in Minuteman Silos Testing Program, Vandenberg Air Force Base, California*
Bienenfeld et al. (2019)	2019-07	*Archaeological Investigations Supporting Section 106 and 110 Compliance for the South Loop 2 and ML/KL Electrical Lines Replacement Project, Vandenberg Air Force Base, Santa Barbara County, California*
Bergin (1988)	1988-03	*Documentation in Support of US Air Force No Adverse Effect Determination for Affected Historic Properties: Natural Gas Pipeline Project, Space Transportation System Project, Vandenberg Air Force Base, California*
Bergin (1989a)	1989-12	*The Survey and Inventory of Archaeological Properties for the Backbone Fiber-Optic Transmission System Project, Vandenberg Air Force Base Santa Barbara County, California*

Author(s)/Year (in alphabetical order)	VAFB Report No.	Report Title
Bergin (1989b)	1989-12b	*Documentation in Support of US Air Force No Adverse Effect Determination, for Phase I Backbone Fiber-Optics Transmission System, Vandenberg Air Force Base, Santa Barbara County, California*
Carbone and Mason (1998)	1998-03	*Phase I, II, and III Archaeological Surveys for Cultural Resources Inventory, Vandenberg Air Force Base, Santa Barbara County, California*
Dames & Moore (1991)	1991-10	*Phase 2 Investigations at Site CA-SBA-1145, Vandenberg Air Force Base, California*
Denardo and Greenlee (2010)	2010-05	*Documentation of Historic Archaeological Ruins and Historic Archaeological Sites on Vandenberg Air Force Base, Santa Barbara County, California*
Drayer and Walker (1994)	1994-21	*Human Skeletal Remains from SBA-212*
Enright and Lebow (2011)	2011-02	*Archaeological Studies in Support of the N1, N3, and N6 Feeder Lines, Vandenberg Air Force Base, Santa Barbara County, California*
Environmental Solutions Inc. (1990a)	1990-15	*The Survey and Inventory of Historic Properties within the Titan IV/Centaur Launch Complex Study Area, Vandenberg Air Force Base, Santa Barbara County, California*
Environmental Solutions Inc. (1990b)	1990-22	*Documentation in Support of US Air Force No Adverse Effect Determination for Phase II Backbone Fiber-Optic Transmission System, Vandenberg Air Force Base, Santa Barbara County, California*
Environmental Solutions Inc. (1990c)	1991-06	*Space Transportation System Natural Gas Pipeline and SLC-4 Security Fence Treatment Programs, Vandenberg Air Force Base, Santa Barbara County, California*
Ferraro et al. (1988)	1988-12	*Survey, Testing, and Evaluation of Fourteen Sites for the STS Power Plant No. 6 Natural Gas Pipeline Project, Santa Barbara County, California*
Gibson (1983)	1983-04	*Results of Archaeological Monitoring of Utility Trenches Associated with the N2 Plant, South Vandenberg Air Force Base, Santa Barbara County, California*
Gibson (1985)	1985-07	*Results of Archaeological Testing at SBA-212 and SBA-1145, Vandenberg Air Force Base, California*
Gibson and Osland (1985)	1985-06	*Results of Archaeological Surface Survey for a Proposed Communication Line near Point Pedernales Southern Vandenberg Air Force Base, California*
Glassow (1981)	1981-10	*Preliminary Report, Archaeological Data Recovery Program in Relation to Space Shuttle Development, Vandenberg Air Force Base, California*
Glassow (1990)	1990-21	*Archaeological Investigations on Vandenberg Air Force Base in Connection with the Development of Space Transportation System Facilities*
Glassow et al. (1976)	1976-01	*Evaluation of Archaeological Sites on Vandenberg Air Force Base, Santa Barbara County, California*
Harmsworth Associates (1987)	1987-14	*Preliminary Case Report in Support of the US Air Force No Effect Determination, Gaseous Nitrogen Pipeline Project*
Harmsworth Associates (1988)	1988-05	*The Testing and Evaluation of Fourteen Archaeological Sites on South Vandenberg Air Force Base, Santa Barbara County, California*
Jackson Jr. (1985)	1985-26	*Status Report Archaeological Services for the GSSI Project at Vandenberg Air Force Base, California, April 1B30, 1985*

Author(s)/Year (in alphabetical order)	VAFB Report No.	Report Title
Kuzminsky and Walker (2008)	2008-02	*Identification of Human Skeletal Remains from SBA-225 (Areas 87A and 87B) and An Overview of Final Reports for Vandenberg Air Force Base Sites SBA-212, SBA-214, SBA-224, SBA-530, and SBA-2456*
Lebow (2000)	2000-12	*Collection and Management of Radiocarbon Data during Fiscal Year 2000, Vandenberg Air Force Base, Santa Barbara County, California*
Lebow (2004)	2004-01	*Archaeological Studies for the Encapsulated Payload Transfer Route, Vandenberg Air Force Base, Santa Barbara County, California*
Lebow and Ryan (2006)	2006-08	*Archaeological Survey of the Coastline and Lower Drainages, Vandenberg Air Force Base, Santa Barbara County, California*
Lebow et al. (2003)	2003-11	*Archaeological Studies for the SLC-4 to SLC-6 Waterline Replacement Project, Vandenberg Air Force Base, Santa Barbara, California*
Lebow et al. (2009)	2009-07	*Archaeological Investigations at CA-SBA-1119 on South Vandenberg Air Force Base, California*
Martin Marietta Corporation (1985)	1985-09	*Environmental Surveillance Report, No. 20, October 1, 1984 through August 15, 1985*
McKim et al. (2007)	2008-06	*CA-SBA-212: Sea Mammal Hunting and Other Late Holocene Littoral Adaptations, Vandenberg Air Force Base, Santa Barbara County, California*
Moore et al. (1998)	—	*The Testing and Evaluation of Fourteen Archaeological Sites on South Vandenberg Air Force Base, Santa Barbara County, California*
Munns (2008)	2008-11	*Report of Pre-Repatriation Inventory of Human Remains and Associated Materials from Vandenberg Air Force Base Sites Curated at the UC Santa Barbara Repository Ossuary [XUMUOS100707]*
Muñoz (1983)	1983-01	*Ethnographic Overview: Fairfield Industries Seismic Testing Program, Vandenberg Air Force Base, Santa Barbara County, California*
Nettles and Hamilton (2008)	2008-14	*The Honda Section House: Data Recovery at CA-SBA-1145/H, Vandenberg Air Force Base, California*
Palmer (1999)	1999-09	*Central Coast Continuum—From Ranchos to Rockets: A Contextual Historic Overview of Vandenberg Air Force Base, Santa Barbara County, California*
Palmer (2000)	2000-15	*Vandenberg Air Force Base Cultural Resources Historic Sites Management Notebook*
Schilz et al. (1984)	1984-02	*Final Report: Vandenberg Air Force Base, California, 1983 Fuels Management Project, Phase II Cultural Resource Survey-Evaluation*
Science Applications International Corporation (1995)	1995-12	*Final Report, Archaeological Survey and Evaluation of the Honda Beach Site, CA-SBA-530, Vandenberg Air Force Base, California*
Smallwood and Ryan (2020)	—	*Identification of Historic Properties and Assessment of Effects, Coast Road/Honda Creek Culvert Project (813-17-007), Vandenberg Air Force Base, Santa Barbara County, California*
Snethkamp and Munns (1991)	1991-11	*Relocation of US Sprint Standby and Regenerator Building: Results of Phase I Survey and Phase Ia Backhoe Testing, Vandenberg Air Force Base, California*
Spanne (1974)	1974-02	*Archaeological Survey of Vandenberg Air Force Base, Santa Barbara County, California 1971–1973*

Author(s)/Year (in alphabetical order)	VAFB Report No.	Report Title
Spanne (1980)	1980-06	*An Archaeological Evaluation of a Cable Trench at CA-SBA-670 and CA-SBA-1144 Honda Canyon, Vandenberg Air Force Base, Santa Barbara, California*
Spanne and Glassow (1974)	1974-01	*Air Force Space Transportation System, Vandenberg AFB, Santa Barbara County, California, Testing and Evaluation of Archaeological Sites: A Preliminary Report*
Stone and Glassow (1980)	1980-11	*Analysis of a Telephone Cable Trench, Sba-670, Sba-1144, Vandenberg Air Force Base, Santa Barbara County, California*
WESTEC Services, Inc. (1985)	1985-03	*Final Report, Archaeological Survey, Testing and Evaluation, STS Power Plant No. 6, Natural Gas Pipeline, Vandenberg Air Force Base, Santa Barbara County, California*

VAFB – Vandenberg Air Force Base

3.3.4 *Previously Recorded Sites*

The ADI intersects the boundaries of five previously recorded sites (CA-SBA-212/H, CA-SBA-539, CA-SBA-669, CA-SBA-1119, and CA-SBA-1145/H), which are listed in Table 3-6 and briefly summarized below.

Table 3-6. Archaeological Sites with the Area of Direct Impact

Site No.	NRHP Status
CA-SBA-212/H	Determined eligible (prehistoric component) Determined not eligible (historic component)
CA-SBA-539	Determined eligible
CA-SBA-669	Not evaluated; assumed eligible for this project
CA-SBA-1119	Determined eligible
CA-SBA-1145/H	Determined eligible

CA-SBA-212/H

CA-SBA-212/H contains both prehistoric and historic components. The prehistoric component, which has been determined eligible for the National Register of Historic Places (NRHP), is a dense midden with flaked stone tools, lithic debitage, marine shell, and vertebrate faunal remains, and is considered one of the most significant archaeological resources on VAFB (McKim et al. 2007). Previous work at the site has included excavation of shovel test units, augers, and column samples by Gibson (1985); excavation of a burial eroding from the sea cliff (Drayer and Walker 1994); refinement of surface boundaries (Carbone and Mason 1998); periodic inspections to monitor the site's condition; and extensive data recovery excavations by Applied EarthWorks (McKim et al. 2007). The historic component of CA-SBA-212/H, which has been determined not eligible for the NRHP, comprises evidence of quarrying and associated rail transport beginning in 1899. The location is also associated with rescue and salvage operations

for the 1923 naval disaster at Point Pedernales, which is commemorated by a plaque within the site.

CA-SBA-539

CA-SBA-539, which has been determined eligible for the NRHP, was initially recorded in the 1950s and was rerecorded during a survey in the early 1970s (Spanne 1974). It was tested in 1974 in conjunction with the STS project and found to contain midden with marine shell, bone, lithic debitage, flaked stone tools, and a cemetery, with deposits up to one meter in depth (Glassow et al. 1976). Several subsequent data recovery excavations have also occurred, including one that determined that cultural materials found along the road edge through the site were redeposited (Moore et al. 1988). No subsequent excavations have been completed at the site (Lebow et al. 2003).

CA-SBA-669

CA-SBA-669 was recorded in 1970 as a temporary shellfish collecting/habitation site with a low density of moderately weathered shellfish (*Mytilus* and *Haliotus*) and lithic debitage, a trace amount of fire-altered rock, and a cluster of siltstone boulders. No further work, including evaluation of NRHP eligibility, has been conducted at this site. For purposes of replacing the Honda Creek culvert, CA-SBA-669 is assumed to be eligible for the NRHP (Smallwood and Ryan 2020).

CA-SBA-1119

CA-SBA-1119, which has been determined eligible for the NRHP, is a prehistoric site with three spatiotemporally distinct shell middens and a diverse cultural assemblage that includes marine shell, vertebrate faunal remains, flaked stone tools, lithic debitage, shell beads, bone tools, fire-altered rock, asphaltum, and pigment. In 2002, Applied EarthWorks excavated at CA-SBA-1119 to evaluate NRHP eligibility and recover and analyze a sample of the deposits being lost to erosion (Lebow et al. 2009).

CA-SBA-1145/H

CA-SBA-1145/H includes both prehistoric (a low-density lithic scatter) and historic components (remnants of the circa-1898 Southern Pacific Railroad's Honda Section House and associated historic trash scatters) (Lebow et al. 2003; Nettles and Hamilton 2008). CA-SBA-1145/H has been determined eligible for the NRHP.

3.4 Earth Resources

3.4.1 *Geology and Soils*

VAFB is a geologically complex area that includes the transition zone between the Southern Coast Range and Western Transverse Range geomorphic provinces of California. The geologic features of VAFB have been an important factor in the development of the diverse natural habitats found in this primarily undeveloped stretch of California coastline. VAFB is underlain

predominantly by marine sedimentary rocks of Late Mesozoic age (140 to 70 million years before the present) and Cenozoic age (70 million years to the present). The basal unit underlying the entire base is the Franciscan Formation of upper Jurassic age (Dibblee 1950). The Franciscan Formation consists of a series of sedimentary and volcanic rocks with numerous serpentine intrusions. Extensive folding and faulting throughout the VAFB area has created four structural regions: the Santa Ynez range, the Lompoc lowland, the Los Alamos syncline, and the San Rafael Mountain uplift (Reynolds et al. 1985). The Santa Ynez range consists of a very thick Cretaceous-Tertiary sedimentary section uplifted along the Santa Ynez fault; it was subsequently folded. The Lompoc lowland is an area of low relief that is structurally synclinal but has Franciscan basement relatively close to the surface. The Los Alamos syncline is a deep structural down warp traversing the Los Alamos and upper Santa Ynez valleys. Faulting along the southwestern margin of the mountain range uplifted the San Rafael Mountains. Most of the folds in these structural regions are oriented to the northwest.

The Proposed Action Area is located along the western edge of VAFB on South Base and lies within the Santa Maria Basin-San Luis Range domain of central California, a geologic transition zone between the Transverse Ranges Geomorphic Province to the south and the Coast Ranges Geomorphic Province to the north. The creek lies at the bottom of the steep-sided Honda Canyon, which drains a large portion of South VAFB. Honda Canyon's underlying alluvium is a heterogeneous mixture of silt, sand, gravel, and clay approximately 50 to 80 ft (15 to 24 m) thick (Evenson and Miller 1963).

Soils in the Honda Canyon mouth area consist of stony soils, loams, and sands (Figure 3-6). Although some of these soil series and associates can contain inclusions of hydric soils, the mapping resolution of the 1972 map is very coarse, and no soils were mapped that would automatically indicate the presence of hydric conditions. Soils that were likely to include inclusions of hydric soils were those along the Honda Canyon bottom, including elder loam, gently sloping; and coastal beach, sandy. Elder loams occur on floodplains and alluvial fans and are generally quite fertile with high water-holding capacity (US Department of Agriculture 1972).

3.4.2 *Seismology*

The Santa Barbara County region is seismically active with a major earthquake occurring in the region about every 15 to 20 years (Air Force 1987; Alterman et al. 1994). The Santa Ynez-Pacifico Fault Zone, the Lompoc-Solvang (Santa Ynez River)-Honda Fault Zone, the Lions Head-Los Alamos-Baseline Fault Zones, and their potential offshore extensions, are three of the primary fault zones that project through VAFB (Alterman et al. 1994).

These fault systems within the Transverse Ranges are considered active (Jennings 1994) and capable of generating damaging earthquakes. Moderate or major earthquakes along these systems could generate strong or intense ground motions in the area, and possibly result in surface ruptures of unmapped faults along the northern and southern boundaries, as well as the central part of VAFB.

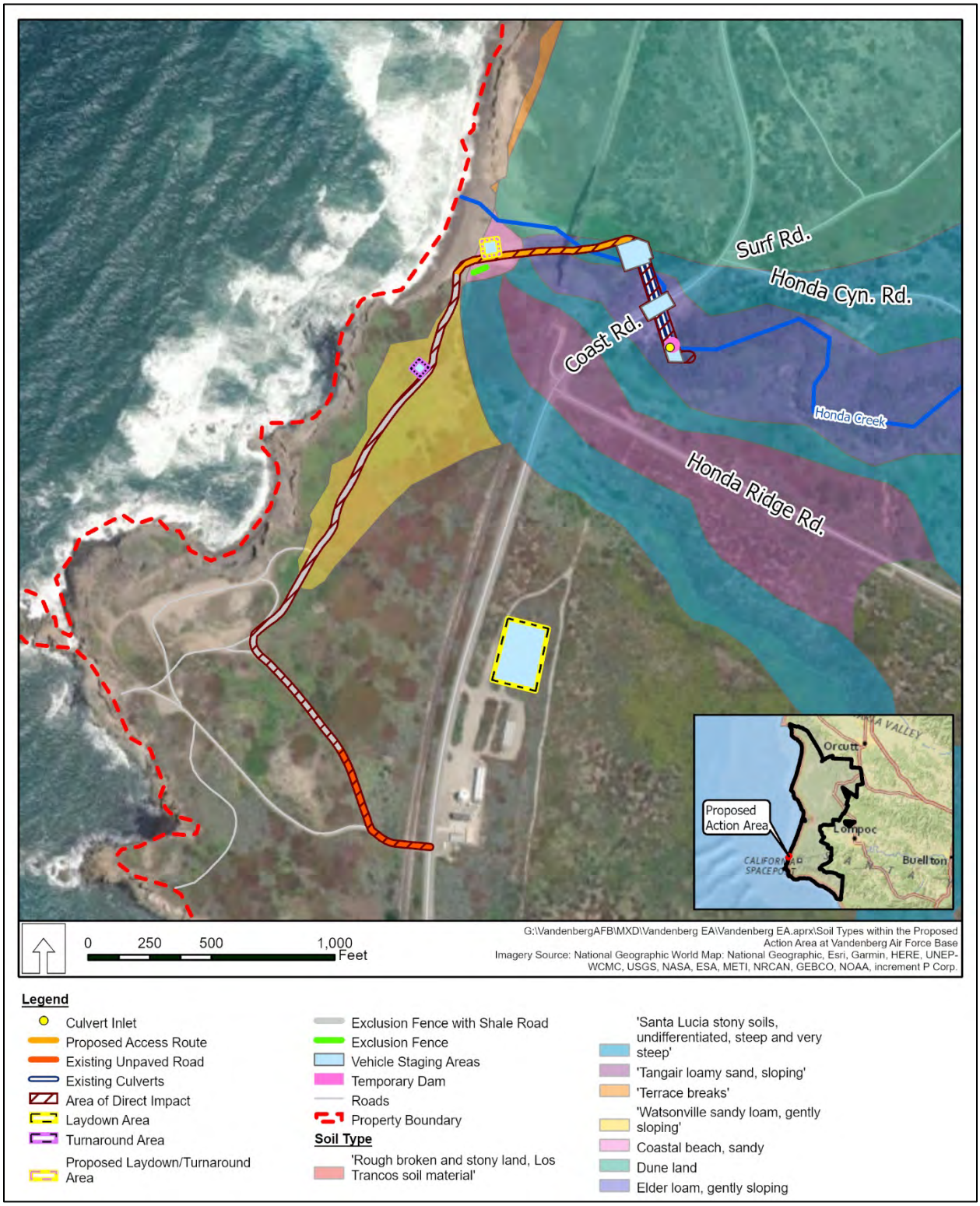

Figure 3-6. Soils Mapped in and near the Proposed Action Area

3.4.3 *Geological Hazards*

The ROI considered for purposes of this EA is Santa Barbara County. The Proposed Action Area at the existing culverts on Coast Road is in a seismically active portion of Central California. Potential hazards that could affect the site and result in structural damage include faulting, ground shaking, liquefaction, lateral spreading and flooding. The hazards consist of seismically induced settlement, collapse (hydroconsolidation), and tsunami potential.

The potential for surface fault rupture on VAFB is generally considered to be low (Air Force 1987). At the present, there are no known areas where liquefaction has occurred. Areas most prone to liquefaction are those where there is sandy to silty soil, the water table is within 50 ft (15 m) of the surface, and earthquake loading exceeds 20 percent of gravity. The areas that are most prone to liquefaction on VAFB are near San Antonio Creek and the Santa Ynez River. The potential for liquefaction on VAFB, despite these areas, is still considered low (Air Force 1987).

Tsunamis, sea waves associated with offshore earthquakes, along the Central and Southern California coast have not been well recorded and documented until recently. Since 1946, only five significant tsunamis have been recorded, and each was associated with distant earthquakes. Tsunami flooding of the VAFB coastline could occur in low-lying areas such as the mouth of the Santa Ynez River and Honda Creek. The recurrence intervals for tsunamis have not been predicted for the VAFB coastline (Air Force 1987).

3.5 Hazardous Materials and Waste Management

Hazardous materials and wastes are those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9675), the Toxic Substances Control Act (15 U.S.C. 2601-2671), the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901-6992), and Title 22 of the California Code of Regulations (CCR). In addition, federal and state OSHA regulations govern protection of personnel in the workplace. In general, the definitions within these citations include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health (to workers), welfare, or the environment, when released into the environment. The ROI for hazardous materials and waste management for the Proposed Action is VAFB.

3.5.1 *Hazardous Materials Management*

Hazardous material use on VAFB is regulated by AFI 32-7076, *Hazardous Materials Management,* and emergency response procedures for hazardous materials spills are established in VAFB's Hazardous Materials Emergency Response Plan (Air Force 2014). In accordance with AFI 32-7076, VAFB requires that all hazardous materials be obtained through the HazMart, a base function that centrally manages the procurement of hazardous materials. Specifically, the HazMart approves the use of hazardous materials only after it reviews the composition of the commodity and how it is to be used to ensure compliance with

environmental, safety, and occupational health regulations and policies. Hazardous materials potentially used during construction and demolition projects are petroleum, oils and lubricants in demolition equipment and vehicles, solvents for paint abatement or equipment cleaning, and compressed gases for welding or cutting equipment.

3.5.2 *Hazardous Waste Management*

Management of hazardous waste at VAFB complies with the RCRA Subtitle C (40 CFR 240-299) and with California hazardous waste control laws as administered by the California Environmental Protection Agency's Department of Toxic Substances Control, under CCR Title 22, Division 4.5. These regulations require that hazardous wastes be handled, stored, transported, disposed of, or recycled according to defined procedures. The VAFB HWMP (Air Force 2002) outlines the procedures to be followed for hazardous waste management on VAFB.

3.5.3 *Installation Restoration Program*

The federal Installation Restoration Program (IRP) was implemented at DoD facilities to identify, characterize, and restore hazardous substance release sites. There are currently 136 IRP sites throughout VAFB grouped based on similarity of their characteristics. The IRP sites are remediated through the Federal Facilities Site Remediation Agreement, a working agreement between the Air Force, the RWQCB – Central Region, and the Department of Toxic Substances Control. In addition to IRP sites, there are identified Areas of Concern (AOCs), where potential hazardous material releases are suspected, and Areas of Interest (AOIs), defined as areas with the potential for use or presence of a hazardous substance.

The following criteria were used to determine the sites included in this discussion:

- IRP sites, AOCs, and AOIs within 2,000 ft (609 m) of the project site
- Sites containing surface water drainage or groundwater flow within the Honda Creek watershed
- Sites upstream of the project site

No IRP sites, AOCs, or AOIs have been identified within 2,000 ft (609 m) of the Proposed Action Area.

3.5.4 *Hazardous Materials and Waste Transport*

The Department of Transportation (DOT) regulates the transport of hazardous materials and waste. Anyone transporting hazardous materials or waste must obtain USEPA identification numbers as transporters. The USEPA has incorporated DOT statutes (49 U.S.C.) into its regulatory scheme and has added other requirements such as recordkeeping and cleanup of spills. Transporters of hazardous materials and waste at VAFB are regulated by the aforementioned laws and are DOT-certified transporters. VAFB follows the California Department of Transportation requirements for traveling with hazardous materials on State

Route (SR) 1, which runs through part of the eastern edge of VAFB, and SR 246, which physically divides the base into North and South VAFB.

3.6 Human Health and Safety

Hazards associated with some past and present mission activities and operations on VAFB can constrain locations where projects can be sited in order to ensure the health and safety of workers. The following hazard zones have been established on VAFB to protect workers from various hazards:

- **Toxic hazard zones** are areas established downwind of launch site operations to protect workers from exposure to toxic vapors emitted during the transfer or loading of liquid propellants or maintenance of launch systems. These zones can extend 20,000 ft (6,096 m) or more from a launch site.
- **Missile/Space Launch Vehicle Flight Hazard Zones and Explosive Safety Zones** are established under the flight path of missile or space launch vehicle launches to protect personnel from debris fallout under the launch trajectory. Explosive safety zones are established from 75 ft (22 m) to 5,000 ft (1,524 m) around launch sites and buildings where rocket propellants are stored to protect personnel from potential explosive hazards. Both of these hazard zones must be evacuated before any launch.
- **Radiofrequency Radiation Hazard Areas** are established around transmitters on VAFB that can present radiation hazards to people and potentially detonate electroexplosive devices. The sizes of the hazard areas vary depending on the transmitter power and antenna reception.
- **Airfield Clear Zones, Lateral Clear Zones (LCZs), and Accident Potential Zones (APZs)** are established around the VAFB airfield runway and contain restrictions on certain land uses. Clear zones and LCZs are areas where the accident potential is so high that land use restrictions prohibit reasonable use of the land. Clear zones occur at both ends of the runway, and LCZs extend 1,000 ft (304 m) from both sides of the centerline along the length of the runway. The ground surface within the LCZ must be graded to certain requirements and kept clear of fixed or mobile objects, except for necessary navigational aids and meteorological equipment. There are two APZs, APZs I and II, which are less critical than clear zones but still possess significant potential for accidents. Acceptable uses within APZ I areas include industry or manufacturing, communication and utilities transportation, wholesale trade, open space, recreation, and agriculture, but not uses that concentrate people in small areas. Acceptable uses within APZ II areas include low business services and commercial retail trade uses of low intensity or scale of operation, but not high-density operations.
- **Air Installation Compatible Use Zones** are areas where certain land uses are restricted due to the combination of the potential for accidents and noise and the need for clearance of obstacles.

- **Unexploded Ordnance Closure Areas** are areas on VAFB that were used as ordnance training ranges and have the potential to contain unexploded ordnance (UXO). On 27 September 2010, all areas known or suspected to contain UXO on VAFB were closed to nonmission/recreational activities. Any proposed work in these areas must be coordinated with the Weapons Safety and Explosive Ordnance Disposal offices. Depending on the area, escorts may or may not be required.

The affected environment for health and safety is the regulatory environment for health and safety issues established to minimize or eliminate potential risk to the general public and personnel involved in the proposed project. The Proposed Action would involve manual labor and heavy equipment operation activities where workers would potentially be exposed to conditions that could adversely impact their health and safety. The ROI of these potential impacts is the Proposed Action Area and surrounding vicinity.

- Hazardous materials, primarily petroleum, oil, and lubricants (POLs), would be used for operating heavy equipment under the Proposed Action. The potential exists for unexpected releases of these POLs, which would generate hazardous waste.
- The construction contractor would transport hazardous material used in or resulting from the Proposed Action. A permitted hazardous waste hauler would transport hazardous waste. The transportation of these materials is discussed in Section 3.5 (Hazardous Materials and Waste Management) of this EA.
- Heavy equipment operation activities create noise, discussed below.

Because of the above conditions, the potential exists for persons participating in the culvert repair activities to become exposed to hazardous materials and hazardous waste. In addition to these more obvious risks to human health and safety, the following, more mundane, physical features, which have the potential to be present in the vicinity of the proposed project, also have the potential to adversely impact the health and safety of the site workers:

- Physical hazards including road traffic, holes and ditches, uneven terrain, sharp or protruding objects, slippery soils or mud, and unstable ground.
- Biological hazards such as animals (insects, spiders, and snakes), and disease vectors (ticks and rodents).

3.7 Solid Waste Management

In 1989, the California Integrated Waste Management Act (Assembly Bill 939) mandated a 50 percent reduction of the quantity of solid waste disposed of in California landfills from a 1990 baseline. The 50 percent reduction was to be accomplished by 1 January 2000. The most recent Air Force mandate regarding solid waste diversion came from Headquarters Air Force Space Command in 2008, requiring a 50 percent diversion rate goal for all solid waste generated at Air Force Systems Command installations (Air Force 2012).

The Pollution Prevention Act of 1990 focused the national approach to environmental protection toward P2. Implementation of the Air Force Environmental Management System (EMS) carries P2 a step further toward mission sustainability principles. The P2 program is defined in detail in the VAFB Pollution Prevention Management Plan, 30 SW Plan 32-7001, and is aimed at achieving 30 SW EMS objectives and targets, through documented practices, procedures, and operational requirements. VAFB implements EMS and its associated P2 program elements by following the P2 hierarchy:

- Reduce (source reduction to prevent the creation of wastes);
- Reuse (keep item or material for its intended purpose);
- Recycle (use item or material for some other beneficial purpose);
- Disposal (in an environmentally compliant manner, only as a last resort).

The State of California passed Senate Bill 1374, amending the Public Resources Code, Section 42912, which addresses the issue of C&D debris, diversion requirements, and the development of a model ordinance to be implemented by local jurisdictions (e.g., Santa Barbara County). EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed on 5 October 2009. With respect to solid waste diversion, EO 13514 requires federal agencies to have as a goal the achievement of 50 percent or higher diversion rate for nonhazardous solid waste and construction and demolition materials and debris by fiscal year 2015. In August 2010, the DoD issued its updated Strategic Sustainability and Performance Plan (SSPP), which was followed up by Headquarters Air Force releasing its SSPP Implementation Plan in October 2011. The established diversion goals of the SSPP are 60 percent diversion, by weight, for construction and demolition debris by 2015. AFI 32-7042, *Waste Management*, requires installations to strive to divert as much solid waste as is economically feasible, and the VAFB Integrated Solid Waste Management Guide (Air Force 2012) requires source segregation of recyclable materials to the greatest extent possible. The ROI of potential impacts on solid waste management as a result of the Proposed Action is VAFB.

3.8 Noise

The Noise Control Act (NCA) (42 U.S.C. 4901 *et seq.*) sought to limit the exposure and disturbance that individuals and communities experience from noise. It focuses on surface transportation and construction sources, particularly near airport environments. The NCA also specifies that performance standards for transportation equipment be established with the assistance of the DOT. Section 7 of the NCA regulates sonic booms and gave the Federal Aviation Administration regulatory authority after consultation with the USEPA. In addition, the 1987 Quiet Community amendment gave state and local authorities greater involvement in controlling noise.

Noise is often defined as unwanted sound that can interfere with normal activities or otherwise diminish the quality of the environment. Depending on the noise level, it has the potential to disrupt sleep, interfere with speech communication, or cause temporary or permanent changes

in hearing sensitivity in humans and wildlife. Noise sources can be continuous (e.g., constant noise from traffic or air conditioning units) or transient (e.g., a jet overflight or an explosion) in nature. Noise sources also have a broad range of frequency content (pitch) and can be nondescript, such as noise from traffic or be specific and readily definable such as a whistle or a horn. The way the acoustic environment is perceived by a receptor (animal or person) is dependent on the hearing capabilities of the receptor at the frequency of the noise, and their perception of the noise.

The amplitude of sound is described in a unit called the decibel (dB). Because the human ear covers a broad range of encountered sound pressures, decibels are measured on a quasi-logarithmic scale. The dB scale simplifies this range of sound pressures and allows the measurement of sound to be more easily understood.

There are many methods for quantifying noise, depending on the potential impacts in question and on the type of noise. One useful noise measurement in determining the effects of noise is the one-hour average sound level (L_{eq1H}). The L_{eq1H} can be thought of in terms of *equivalent* sound; that is, if a L_{eq1H} is 45.3 dB, this is what would be measured if a sound measurement device were placed in a sound field of 45.3 dB for one hour. The L_{eq1H} is usually A-weighted (dBA) unless specified otherwise. A-weighting is a standard filter used in acoustics that approximates human hearing and in some cases is the most appropriate weighting filter when investigating the impacts of noise on wildlife as well as humans. Examples of A-weighted noise levels for various common noise sources are shown in Table 3-7.

Existing noise levels on VAFB are generally quite low due to the large areas of undeveloped landscape and relatively sparse noise sources. Background noise levels are primarily driven by wind noise; however, louder noise levels can be found near industrial facilities and transportation routes. Rocket launches and aircraft overflights create louder intermittent noise levels. On VAFB, general ambient L_{eq1H} measurements have been found to range from around 35 to 57 dB (Berg et al. 2002). Most activities associated with the Proposed Action would generate relatively continuous noise throughout the implementation period.

Table 3-7. Comparative A-Weighted Sound Levels

Noise Level	Common Noise Levels	
(dBA)	Indoor	Outdoor
100–110	Rock band inside New York subway	Jet flyover at 304 meters
90–100	Food blender at 1 meter	Gas lawnmower at 1 meter
80–90	Garbage disposal at 1 meter	Diesel truck at 15 meters; noisy urban daytime
70–80	Shouting at one meter; vacuum cleaner at 3 meters	Gas lawnmower at 30 meters
60–70	Normal speech at 1 meter	Commercial area heavy traffic at 100 meters
50–60	Large business office; dishwasher next room	
40–50	Small theater or large conference room (background)	Quiet urban nighttime
30–40	Library (background)	Quiet suburban nighttime
20–30	Bedroom at night	Quiet rural nighttime
10–20	Broadcast and recording studio (background)	
0–10	Threshold of hearing	

Noise Level	Common Noise Levels	
(dBA)	Indoor	Outdoor

Note: dBA = A-weighted decibel

3.9 Coastal Zone Management

Federal activity in, or affecting, a coastal zone requires preparation of a Coastal Zone Consistency Determination or a Negative Determination, in accordance with the CZMA of 1972. The California Coastal Zone Management Program was formed through the California Coastal Act (CCA) of 1972. The Air Force is responsible for making final Coastal Zone Consistency Determinations or Negative Determinations for its activities occurring within the state coastal zone or having effects on it. The CCC reviews federally authorized projects for consistency with the California Coastal Zone Management Program.

The Air Force has determined that the Proposed Action would not affect any coastal resources within the state coastal zone. As defined in Section 304 of the CCA, the term “coastal zone” does not include “lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal government.” The Proposed Action will occur within VAFB, which is wholly owned and operated by the DoD, and therefore is excluded from the coastal zone. However, the Air Force recognizes that actions outside the state coastal zone may affect land or water uses or natural resources within the state coastal zone and therefore are subject to the provisions of the CCA. Consequently, an analysis of the impacts of the Proposed Action on the coastal zone was conducted.

3.10 Transportation

For the purpose of this EA, the ROI for transportation would be the combination of highway, arterial, and local roads that provide service to VAFB and the Proposed Action Area. Existing roadway conditions are evaluated based on roadway capacity and traffic volume. The capacity, which reflects the ability of the network to serve the traffic demand of a roadway, depends on the roadway width, number of lanes, intersection control, and other physical factors. Traffic volumes can be reported as the number of vehicles averaged over a daily period (Average Daily Traffic [ADT]) or an annual period (Annual Average Daily Traffic [AADT]). Peak-hour volume is defined as the highest volume of traffic in a 24-hour period that is recorded on a roadway or intersection during a one-hour period.

The performance of a roadway is generally expressed in terms of Level of Service (LOS). As shown in Table 3-8, the LOS scale ranges from A to F, with each level defined by a range of volume-to-capacity (V/C) ratios. LOS A, B, and C are considered good operating conditions with minor to tolerable delays experienced by motorists. LOS D represents below-average conditions. LOS E reflects a roadway at maximum capacity, and LOS F represents traffic congestion.

Table 3-8. Level of Service Scale

LOS	Description	Criteria (V/C)		
		Multilane Arterial	Two-Lane Highway	Delays[(a)]
A	Free flow with users unaffected by presence of other roadway users	0–0.30	0–0.15	< 10.0
B	Stable flow, but presence of the users in traffic stream becomes noticeable	0.31–0.50	0.16–0.27	10.0–20.0
C	Stable flow, but operations of single users becomes affected by interaction with others in traffic stream	0.51–0.70	0.28–0.43	20.0–35.0
D	High density, but stable flow, speed and freedom of movement are severely restricted; poor level of comfort and convenience	0.71–0.84	0.44–0.64	35.0–55.0
E	Unstable flow; operating conditions at capacity with reduced speeds; maneuvering difficult and extremely poor levels of comfort and convenience	0.85–1.00	0.65–1.00	55.0–80.0
F	Forced breakdown flow with traffic demand exceeding capacity; unstable stop-and-go traffic	> 1.00	> 1.00	> 80.0

Notes: V/C = volume to capacity
(a) average stop delay at intersections

3.10.1 *Region of Influence*

VAFB is located approximately 5 mi (8 km) west of the City of Lompoc. The main access route to VAFB is US Highway 101 (US 101). US 101 is a coastal four-lane divided freeway connecting northern California to southern California. The VAFB connections to US 101 are SR 1, SR 135, and SR 246. SR 1, a north-south highway, traverses VAFB and provides access to Santa Maria to the northeast, and Santa Barbara to the southeast (Figure 3-7). When used in conjunction with US 101, SR 246, an east-west highway, provides access to Lompoc to the east, and Santa Barbara to the southeast (Figure 3-7). SR 135 and SR 246 are mostly two-lane undivided highways with four-lane rural expressway portions.

Roadways in the vicinity of the Proposed Action Area lie within the jurisdiction of VAFB and Caltrans. These roadways include SR 1, SR 246, West Ocean Avenue, Coast Road, Honda Ridge Road, and Honda Canyon Road (see Figure 3-7).

VAFB is a federal military installation, and access to portions of the base is only permitted to authorized military personnel and their families, civilian employees of the base with approved identification, and visitors with preapproved authorization. Roadways within the Proposed Action Area are not restricted to public access, except during special military events or operations.

The Proposed Action Area is located on Coast Road. Project personnel and equipment would access the location via US 101, turning onto either SR 1 or SR 246 (West Ocean Avenue).

Figure 3-7. Main Access and Transportation Routes Associated with the Proposed Action

From West Ocean Avenue, personnel and equipment would turn onto Coast Road to access the site (see Figure 3-7). During the culvert repair, which is estimated to be 8 months, a 150 LF (45.7 m) portion of one lane of Coast Road would be temporarily closed; however, Coast Road would remain open.

3.10.1 *Project Traffic and Haul Routes*

The haul route to an off-base landfill from the Proposed Action Area would be as follows: to Santa Maria Landfill, travel north on Coast Road, then east onto SR 246/West Ocean Avenue to proceed onto US 101 north to Santa Maria, approximately 20 mi (32 km), one way; or to Lompoc Landfill, travel on Coast Road, then north to Bear Creek Road heading east, then north to Arguello Road, east onto Ocean Road, then south onto Bailey Street, east onto Olive Street, and then south onto Avalon Street.

There is one route available to traffic leaving the local area, accessible by exiting the project site traveling east on SR 246/West Ocean Avenue and continuing straight to connect to SR 1/US 101, or turning south onto SR 1, and continuing straight to connect to US 101.

3.11 Water Resources

In California, the SWRCB and the RWQCBs administer the CWA and state water regulations. The California Water Code provides a framework for establishing beneficial uses of water resources and the development of local water quality objectives to protect these beneficial uses. State regulations require a Waste Discharge Requirements document for permitting discharge. The California Water Code is the State law for water quality protection in California.

The CWA mandates that point source discharges to surface water or to the ocean are subject to the National Pollutant Discharge Elimination System (NPDES) permit program. In California, there are NPDES General Permits for municipal, industrial, and construction site discharges. Construction General Permit coverage for construction activities ensures that water discharged from a site meets water quality standards at the point of discharge. The NPDES Construction General Permit also reduces and eliminates storm water and non-storm-water discharges associated with construction activities through BMPs, site inspections, and monitoring to evaluate the effectiveness of the permit implementation actions. NPDES Construction General Permit coverage is required for construction projects with soil disturbance equal to or greater than 1.0 acre (0.04 ha) in size that potentially discharge to WOTUS. CGP coverage requires the development of a Storm Water Pollution Prevention Plan (SWPPP), which describes BMPs to prevent pollutant and sediment.

The Central Coast RWQCB (CCRWQCB) is the local agency responsible for the VAFB region. The CCRWQCB regulates surface water bodies on VAFB primarily by adoption of its region-specific Water Quality Control Plan (Basin Plan) (CCRWQCB 2019). The Basin Plan incorporates SWRCB plans and policies and contains a strategy for maintaining or achieving the highest water quality possible for the region's surface water and groundwater resources. The Basin Plan antidegradation policy states "wherever the existing quality of water is better than the

quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the State Water Resources Control Board Resolution No. 68-16" (CCRWQCB 2019).

Under Section 401 of the CWA, a federal agency cannot issue a permit or license for an activity that may result in a discharge to WOTUS until the state where the discharge would originate has granted or waived the Section 401 water quality certification. A CWA Section 401 water quality certification from the CCRWQCB is required under the Proposed Action because direct impacts on water bodies and wetlands would occur.

Section 404 of the CWA regulates the discharge of dredged or fill material into WOTUS, including wetlands. Section 404 permits are reviewed and issued by the USACE. A CWA Section 404 permit from the USACE is required under the Proposed Action because direct impacts on water bodies and wetlands would occur.

The Water Quality Control Plan for Ocean Waters of California (Ocean Plan) controls the discharge of waste to the ocean to prevent degradation of marine communities or threats to public health. It establishes beneficial uses and water quality objectives for the protection of ocean waters. The Ocean Plan and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California were amended in 2015 to prohibit the discharge of trash.

3.11.1 *Region of Influence*

VAFB encompasses portions of two major and four minor drainage basins. San Antonio Creek and the Santa Ynez River represent the major basins, while Shuman Creek, Bear Creek, Honda Creek, and Jalama Creek comprise the minor basins on VAFB. The Pacific Ocean is adjacent to the Proposed Action Area, which includes a portion of Honda Creek.

3.11.2 *Surface Water and Floodplains*

The Honda Creek watershed consists almost entirely of undeveloped riparian, scrublands, and woodlands with Coast Road and the Union Pacific Railroad crossing it near its mouth at the Pacific Ocean. Honda Creek itself is a perennial waterway that may occasionally run dry in the summer during low-precipitation years. Rate of flow is seasonal with higher flows during the rainy season from November to May and lower flow during the rest of the year when precipitation is infrequent. Summer flow is derived from several springs along both sides of the canyon that occasionally cease during particularly dry periods. Mean rainfall for the region, measured at Lompoc City Hall from 1954 through 2019, is 14.58 inches (37.03 centimeters; County of Santa Barbara Public Works 2020).

Water quality sampling in 2007 in Honda Creek registered exceedances for chlorophyll a, pH, dissolved solids, and turbidity. Base activities in the Honda Creek region present a relatively small threat to water quality in the creek (Tetra Tech Inc. 2008). Beneficial uses for Honda Creek include municipal and domestic supply; agricultural supply; groundwater recharge; freshwater replenishment; water contact recreation; noncontact water recreation; wildlife habitat;

warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and early development habitat; rare, threatened, or endangered species habitat; and commercial and sport fishing (CCRWQCB 2019).

The Honda culvert repair project is subject to EO 11988, *Floodplain Management,* requirements and objectives because its intended location is in the floodplain of Honda Creek. The 100-year floodplain for Honda Creek is depicted in Figure 3-8. The canyon carved by Honda Creek is a narrow, steep-sided cut running westward through south VAFB, roughly coinciding with the Cañada Honda fault. Because the canyon is narrow and steep, the floodplain is highly constricted. It widens slightly just upstream of the culverts where the creek winds through dense arroyo willow groves. EO 11988 requires federal agencies to reduce the risk of flood loss, minimize the impact of flood on human safety, and to restore and preserve the natural and beneficial values served by floodplains. EO 11988 requires an evaluation of alternatives prior to proceeding with federal actions that may affect floodplains. The Air Force requested advance public comment in compliance with EO 11988 to determine if there were any public concerns regarding the project's potential impacts or comments on potential project alternatives.

3.11.3 *Groundwater*

VAFB includes parts of two major groundwater basins, and at least two subbasins. Most of the northern third of the base is within the San Antonio Creek Basin, while most of the southern two-thirds of the base is within the Santa Ynez River Basin and associated Lompoc Terrace and Cañada Honda Subbasins (Air Force 2015). The Proposed Action is within the Cañada Honda Subbasin. Honda Creek is almost entirely on VAFB property, originating at the west end of the Santa Ynez Mountains, north of Tranquillon Ridge and draining a catchment of 1,436 ac (581 ha; USEPA 2020). Its associated subbasin is also thus predominantly on VAFB property.

The VAFB water supply primarily comes from the State Water Project (80 to 90 percent) in nondrought years. During drought periods, groundwater supply is primarily provided by the San Antonio Groundwater Basin. Aquifers capable of yielding large quantities of water usable for water supply are generally restricted to the deeper portions of the Santa Ynez River and San Antonio Creek (Air Force 1998). Four groundwater production wells located in the San Antonio Creek-Barka Slough area are used to supplement the VAFB state water during annual maintenance periods and periods of drought. The greatest threat to groundwater is contamination from hazardous material or waste releases that could infiltrate an aquifer.

The Sustainable Groundwater Management Act of 2014 (SGMA 2014), and its subsequent enactment in January 2015 mandate that all California groundwater basins designated as high- or medium-priority by the California Department of Water Resources, be managed under a Groundwater Sustainability Plan (GSP; Section §10720.7 California Water Code). GSPs are currently being formed for the medium-priority Santa Ynez and San Antonio groundwater basins by their associated groundwater sustainability agencies (GSAs). VAFB is a federal institution that is exempt from mandatory SGMA compliance yet has expressed intent to collaborate and assist with pertinent GSAs in their GSP formations per Water Code §10720.3.

Figure 3-8. Honda Creek 100-Year Floodplain on Vandenberg Air Force Base

In 1963, the Point Arguello Naval Missile Facility installed and monitored test wells to analyze groundwater across south VAFB, some of which were in Honda Creek (Evenson and Miller 1963). These test wells indicated that Honda Canyon's underlying alluvium is a heterogeneous mixture of silt, sand, gravel, and clay approximately 50 ft to 80 ft (15 m to 24 m) thick, and the coarser water-bearing strata are in the lower third of the section. The study concluded that owing to the heterogeneity of the material, the deposits would not yield much water to wells, and the quality of the water would be poor because of high chloride levels and dissolved solids.

Groundwater quality in the region meets all National Primary Drinking Water Regulation standards (California Department of Water Resources 2004). Continued overdraft of the groundwater basins could lead to degradation in the water table levels and a compaction of the basins. Groundwater monitoring is conducted for basins that are used for drinking water.

3.11.4 *Waters of the United States and Wetlands*

WOTUS encompass the jurisdictional limits of the authority of the USACE and include perennial and intermittent streams and their tributaries that have defined bed and banks, have an ordinary high-water mark (OHWM), or are below the high tide line (HTL). The OHWM is a line on the shore established by the fluctuations of ordinary water flows, while the HTL is equivalent to the highest predicted high tide for the calendar year. In addition to these waters, WOTUS also include adjacent jurisdictional wetlands, defined in the 2020 Navigable Waters Protection Rule (NWPR): "waters of the United States" are wetlands with a direct surface connection to a nonwetland WOTUS (FR 33 Part 328; 40 CFR 110, 112, 116, 117, 120, 122, 230, 232, 300, 302, and 401).

A jurisdictional wetland delineation was conducted at Honda Creek in February 2020 and it was determined that under the Proposed Action, construction would occur within the bounds of potential WOTUS and adjacent jurisdictional wetlands (ManTech SRS Technologies Inc. 2020). A total of 0.47 ac (0.19 ha) of the wetland delineation survey area were within the riverine OHWM (Table 3-9, Figure 3-9). This included nonwetland vegetation that was within the OHWM, as well as delineated wetlands and open water in the stream channel. An additional 2.27 ac (0.92 ha) of potential WOTUS was delineated in the estuary and was bounded by the HTL. This included the open water in the estuary as well as coastal salt marsh and upland vegetation that would be inundated during the high tide level represented by the HTL. In all, 2.74 ac (1.11 ha) of potential WOTUS were mapped in the wetland delineation survey area at Honda Creek (Figures 3-9 and 3-10).

Table 3-9. Results of Surveys for Potential Waters of the United States

Vegetation Type	Resource Type	Area (acres)
Waters of the United States Bounded by the Ordinary High-Water Mark or Delineated as Adjacent Wetlands		
Acacia	Other*	0.03
Central Coastal Arroyo Willow Riparian Forest and Scrub	Other*	0.24

Vegetation Type	Resource Type	Area (acres)
Coastal and Valley Freshwater Marsh	Nontidal Wetland	0.13
Open Water	Perennial Stream/River	0.07
	Subtotal	***0.47***
Waters of the United States Bounded by the High Tide Line or Delineated as Adjacent Wetlands		
Central Coastal Arroyo Willow Riparian Forest and Scrub	Other†	0.11
Central Coastal Scrub/Iceplant	Other†	0.11
Coastal and Valley Freshwater Marsh	Tidal Wetland	0.18
Coastal and Valley Freshwater Marsh	Tidal Wetland (Adjacent)	0.02
Coastal Salt Marsh	Other†	0.68
Coastal Strand	Other	0.70
Open Water	Lagoon	0.42
Open Water	Lagoon**	0.05
	Subtotal	***2.27***
	TOTAL	**2.74**

*Upland vegetation type bounded by the Ordinary High-Water Mark
†Upland vegetation type bounded by the High Tide Line
**Open water above the High Tide Line but with direct connection to open water below the High Tide Line

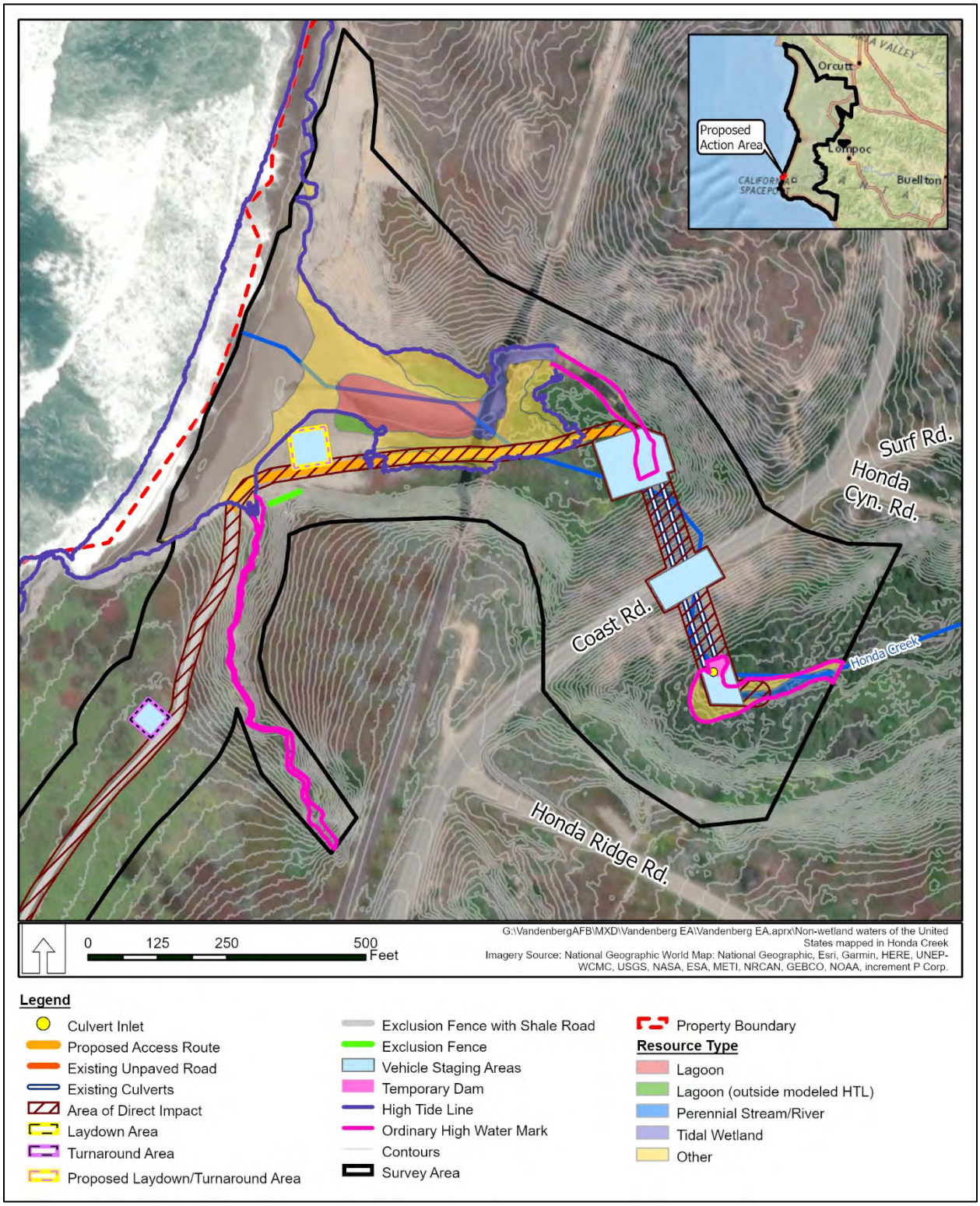

Figure 3-9. Potential Nonwetland Waters of the United States Mapped in Honda Canyon

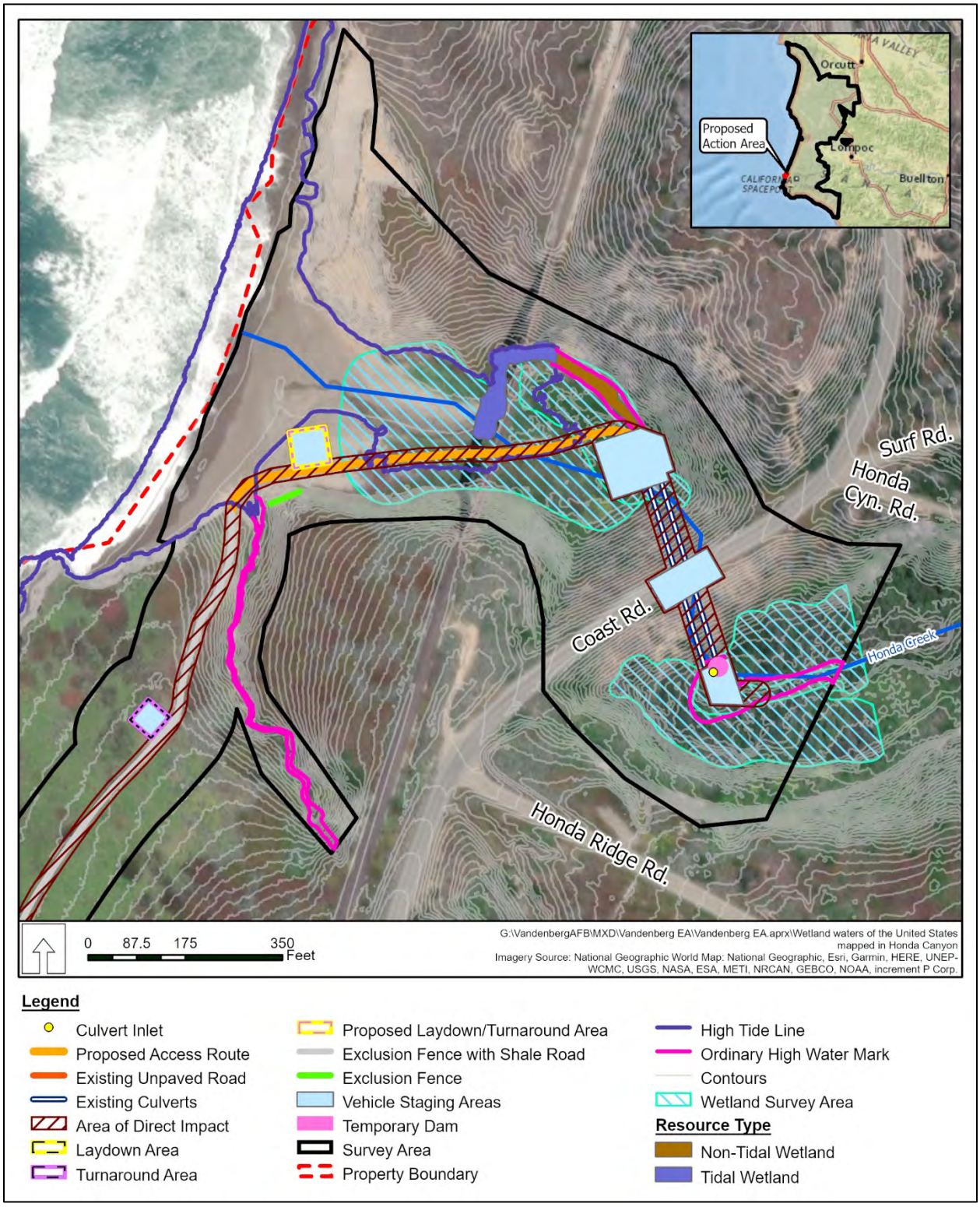

Figure 3-10. Potential Wetland Waters of the United States Mapped in Honda Canyon

3.11.1 *Waters of the State and Wetlands*

In addition to federal protections afforded by the federal CWA and NWPR, aquatic resources are protected in California through regulation of activities within inland streams, wetlands, and riparian zones. The RWQCB and the California Department of Fish and Wildlife both hold jurisdiction over all wetland and nonwetland WOTUS under USACE jurisdiction, along with additional features such as riparian zones, ground water, and a broader scope of isolated and ephemerally present surface and ground waters. The California Water Code gives the State very broad authority to regulate WOTS which are defined as surface water or groundwater, including saline waters. The local RWQCB administers the Porter-Cologne Water Quality Control Act (PCWQCA) and determines the exact definition of WOTS within its region.

The State of California also regulates water resources under Sections 1600 to 1603 of the Fish and Game Code. Waters of the state include ephemeral, intermittent, and perennial watercourses. Jurisdiction is extended to the limit of riparian zones that are located contiguous to the water resource and that function as part of the watercourse system. Section 2785(e) of the Fish and Game Code of California defines “riparian zones” as lands which contain habitat which grows close to and which depends on soil moisture from a nearby freshwater source. Waters of the state include all wetland WOTUS, as well as wetlands that meet the state’s own definition. State wetlands include isolated wetlands with no surface connection to a traditionally navigable water, as well as wetlands that are unvegetated, so long as they have hydric soils and wetland hydrology. Waters of the state also include all nonwetland WOTUS, and some ephemeral streams that do not qualify as WOTUS may qualify as WOTS if they have indicators of an OHWM, for instance.

The total area of potential WOTS is 4.65 ac (1.88 ha) (Table 3-10, Figure 3-11). The large areas of dense arroyo willow on the south side of Honda Creek below the culverts and surrounding it above the culverts qualifies as riparian habitat. In addition, the small areas of coastal salt marsh characterized primarily by fleshy jaumea (*Jaumea carnosa*), alkali heath (*Frankenia salina*), and saltgrass (*Distichlis spicata*) surrounding the open water, foredune and coastal strand in the estuary indicate a connection to the estuary’s hydrology and tidal influence. These vegetation types satisfy the WOTS definition of “lands which contain habitat which grows close to and which depends on soil moisture from a nearby freshwater source.”

Table 3-10. Results of Surveys for Potential Waters of the State

Vegetation Type	Resource Type	Area (acres)
Waters of the State Bounded by the Ordinary High-Water Mark, Delineated as Adjacent Wetlands, or Riparian Zone		
Coastal and Valley Freshwater Marsh	Nontidal Wetland	0.13
Central Coastal Arroyo Willow Riparian Forest and Scrub	Riparian Zone	1.69
Acacia	Stream Channel	0.03
Central Coastal Arroyo Willow Riparian Forest and Scrub		0.24
Open Water	Stream Channel/Nontidal Wetland	0.07
Central Coastal Scrub/Iceplant	Stream Channel	0.12
	Subtotal	***2.29***

Vegetation Type	Resource Type	Area (acres)
Waters of the State Bounded by the High Tide Line, Delineated as Adjacent Wetlands, or Riparian Zone		
Central Coastal Scrub	Estuary	<0.01
Central Coastal Scrub/Iceplant		0.14
Central Coastal Arroyo Willow Riparian Forest and Scrub		0.11
Acacia		<0.01
Coastal Salt Marsh		0.65
Coastal Strand		0.70
Foredune		<0.01
Open Water	Estuary/Tidal Wetland	0.42
Coastal Salt Marsh	Riparian Zone	0.08
Coastal and Valley Freshwater Marsh	Tidal Wetland	0.20
Open Water		0.05
	Subtotal	***2.36***
	TOTAL	**4.65**

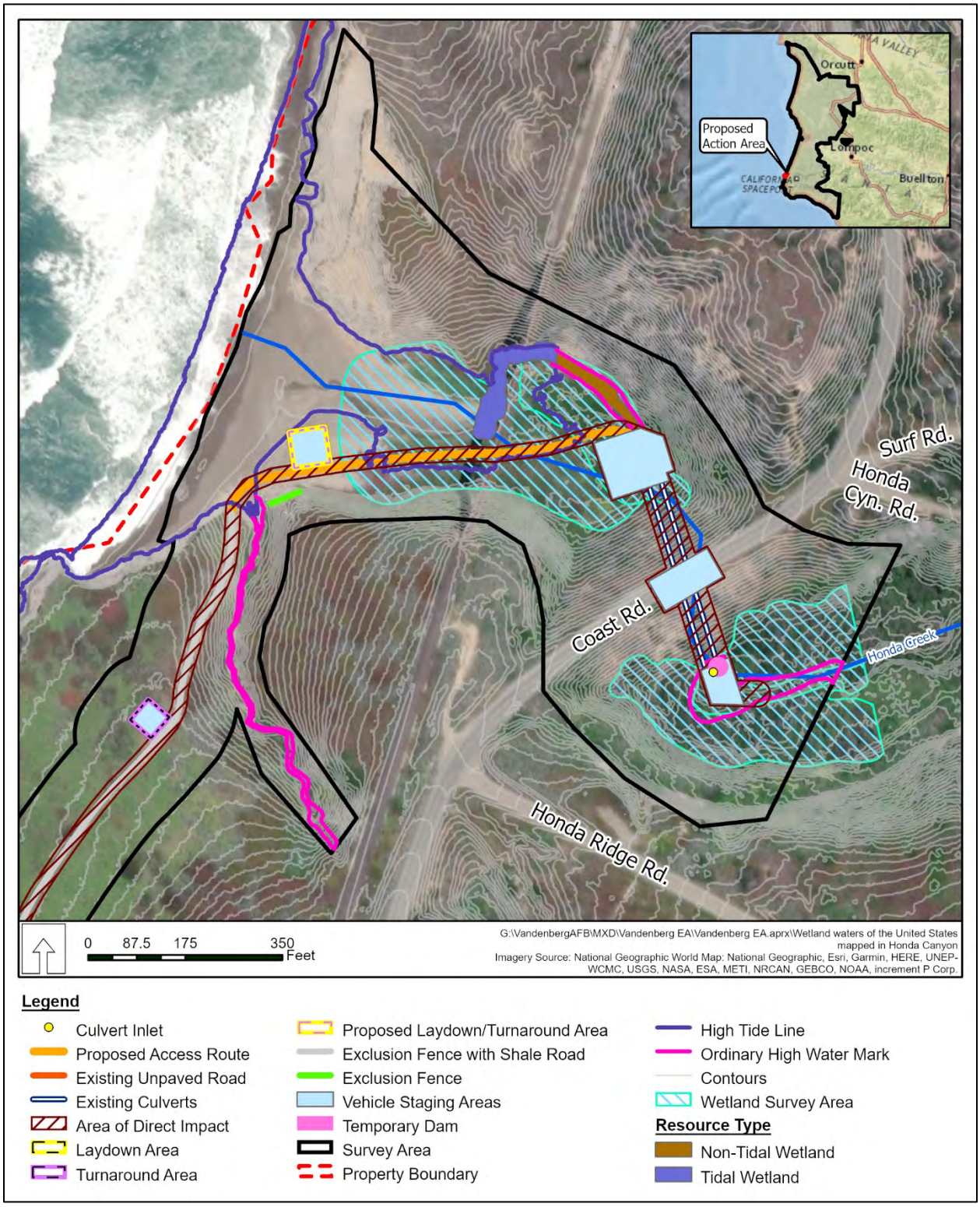

Figure 3-11. Potential Wetland Waters of the State Mapped in Honda Canyon

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4.0 ENVIRONMENTAL CONSEQUENCES

The following analysis of environmental consequences is based on the potential direct, indirect, short-term and long-term, and cumulative effects of the Proposed Action and the No Action Alternative as described in Chapter 2. A list of factors to be considered in determining whether impacts are significant, for purposes of NEPA, are provided in each subsection. Both beneficial and adverse effects are considered. Whether beneficial impacts may occur will be discussed in the analysis of each subsection since the listing of factors to be considered in each subsection is normally focused on the potential for adverse impacts. The decision as to whether to prepare an Environmental Impact Statement is based on the impacts of the action as a whole considering context and intensity of the potential impacts.

4.1 Air Quality

Factors considered in determining whether implementing an alternative may result in significant impacts on air quality include the extent or degree to which implementation of an alternative would:

- Expose people to localized (as opposed to regional) air pollutant concentrations that potentially exceed federal or state ambient air quality standards; or
- Exceed caps (limits) as imposed by federal and state GHG regulations.

To determine the significance of operational impacts, emissions from the project were compared with the federal major source thresholds. The federal major source threshold for criteria pollutants is 250 tons per year, which is the major source threshold under 40 CFR Part 70, the Federal Operating Permit Program, for all pollutants.

Standard dust control measures (see Section 2.6.1, Air Quality) must be implemented for any discretionary project involving earth-moving activities. Some projects have the potential for construction-related dust to cause a nuisance. Since Santa Barbara County violates the state standard for PM_{10}, dust mitigation measures are required for all discretionary construction activities regardless of the significance of the fugitive dust impacts based on the policies in the 1979 Air Quality Attainment Plan.

On 1 August 2016, the CEQ released final guidance on addressing climate change in NEPA documents. Although similar to earlier guidance, this provides a more comprehensive climate policy than the 2010 draft guidance, which recommended quantification of GHG emissions and proposed a threshold of 25,000 metric tons of CO_2e emissions. The 2010 guidance indicated that use of 25,000 metric tons of CO_2e emissions as a reference point would provide federal agencies with a useful indicator, rather than an absolute standard of significance, to provide action-specific evaluation of GHG emissions and disclosure of potential impacts. This analysis complies with the recommendations of both the 2010 and 2014 versions of the draft guidance.

For purposes of this air quality analysis, project emissions within the VAFB region would be potentially significant if they exceed these thresholds. This is a conservative approach, as the

analysis compares emissions from both project-related stationary and mobile sources to these thresholds.

4.1.1 *Proposed Action*

Impacts on air quality from construction related to the Honda culvert's replacement would be generated primarily from the combustive emissions of fossil-fuel-powered equipment and fugitive dust emissions from the operation of equipment on exposed soil. The analysis therefore involves estimating emissions generated from the Proposed Action and assessing potential impacts on air quality. The construction would occur over a period of approximately 8 months. The assumptions of construction equipment, vehicles, and workforce required to implement the Proposed Action that were used for the analysis were presented in Table 2-1.

To calculate emissions associated with construction activities, emissions factors were taken from the California Emissions Estimator Model (CalEEMod) website for all criteria pollutants, CO_2, and CH_4 (BREEZE Software 2017). The CalEEMod is the latest version of the land use model in California and considers emission factors for construction equipment from the CARB's OFFROAD model and emission factors for on-road vehicles from the CARB's EMFAC2011 model. Emissions factors for N_2O were not provided on the CalEEMod website; instead these were sourced from the USEPA's *2013 Revisions to the Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements* (40 CFR 98). Table 2-1 shows assumptions made regarding construction equipment and time necessary for construction.

The construction workers' commute is also considered in this analysis. To calculate emissions associated with the commutes of construction workers, emissions factors were taken from the CARB's Emissions Factors 2017 Web Database, which represents the most up-to-date emissions factors available from the CARB for passenger vehicles (CARB 2020a). To calculate commute emissions, it is assumed that there would be three workers to a single 2011 passenger car and workers would be commuting from Lompoc to the construction site in VAFB. Furthermore, for the portion of the commute off-base (22 mi), it is assumed workers would be traveling on the highway at 65 mi per hour; for the portion of the commute on-base (11 mi), it is assumed that workers will drive 40 mi per hour (the maximum speed limit on base).

Criteria Pollutant Emissions

Table 4-1 shows emissions produced during implementation of the Proposed Action would not exceed the significance thresholds for any criteria pollutant. Moreover, the implementation of EPMs, including fugitive dust control and diesel emission mitigation measures, described in detail in Section 2.6.1 (Air Quality), would reduce potential emissions. The increase in construction-related PM_{10} emissions will not have a substantial effect on the 24-hour CAAQS and will not exacerbate the annual standard. Therefore, the Proposed Action will not have a significant effect on air quality.

Table 4-1. Criteria Air Pollutant Emissions Associated with the Proposed Action

Criteria Air Pollutant Emissions, tons/year						
Construction-Related Emissions						
Equipment Type	**CO**	**NOx**	**ROG**	**SOx**	**$PM_{2.5}$**	**PM_{10}**
Concrete Truck	0.266	0.591	0.050	0.001	0.021	0.023
Bobcat	0.142	0.126	0.025	0.000	0.008	0.009
Grader	0.261	0.911	0.069	0.001	0.059	0.029
Compactor	0.021	0.020	0.004	0.000	0.001	0.002
Dump Truck	0.603	1.340	0.114	0.001	0.047	0.051
Flatbed	0.695	1.617	0.135	0.002	0.058	0.063
Pickup Trucks	2.405	4.765	0.443	0.008	0.160	0.174
Worker Commute-Related Emissions						
Passenger Vehicles	0.0205	0.00124	0.000233	0.000154	1.78E-05	1.94E-05
Total Annual Emissions						
Total Emissions	**4.41**	**9.37**	**0.84**	**0.01**	**0.35**	**0.35**
SBCAPCD Offset Threshold	25	25	25	25	25	25
Federal Significance Threshold	100	100	100	100	100	100
Exceeds Threshold?	No	No	No	No	No	No

Emissions of GHGs are considered to have a potential cumulative impact on global climate. The emissions associated with the replacement of the Honda Creek culvert would generate a diminutive amount of regional emissions of CO_2 and other GHGs. Scientists are in widespread agreement that the Earth's climate is gradually changing, and that change is due, at least in part, to emissions of CO_2 and other GHGs from manmade sources. The anticipated magnitude of global climate change is such that a significant cumulative impact on global climate exists.

On the issue of global climate change, however, there are no adopted federal plans, policies, regulations, or laws mandating reductions in the GHG emissions that cause global climate change. The climate change research community has not yet developed tools specifically intended to evaluate or quantify end-point impacts attributable to the emissions of GHGs from a single source. In particular, because of the uncertainties involving the assessment of such emissions regionally and locally, the very minor incremental contribution of the Proposed Action to climate change cannot be determined given the current state of the science and assessment methodology.

The Proposed Action's emissions have been compared with the proposed federal threshold of 25,000 metric tons of CO_2e emissions. Table 4-2 summarizes the annual GHG emissions associated with the Proposed Action. These data show that the annual CO2e emissions estimated for the Preferred Alternative would be less than the proposed significance threshold

of 25,000 metric tons of CO_2e. Therefore, cumulative impacts on global climate change would not be significant and net emissions would not significantly affect regional air quality resulting in less than significant impacts.

Table 4-2. Greenhouse Gas Emissions Associated with the Proposed Action

Greenhouse Gas Emissions, metric tons/year				
Construction				
Vehicle	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Concrete Truck	1.75E-01	5.23E-05	1.45E-06	0.177
Bobcat	1.72E-02	5.93E-06	1.51E-07	0.017
Grader	1.20E-01	3.90E-05	1.08E-06	0.122
Compactor	2.68E-03	8.67E-07	2.16E-08	0.003
Dump Truck	1.99E-01	5.93E-05	1.64E-06	0.201
Worker Commute				
Passenger Vehicle	14.07	6.80E-05	1.72E-04	14.13
Total Annual Emissions				
Total Emissions	**15.03**	**3.58E-04**	**1.80E-04**	**15.09**
Exceeds 25,000 Metric Ton Threshold?	No	No	No	No

Notes: CO_2 = carbon dioxide, CH_4 = methane, N_2O = nitrous oxide, CO_2e = carbon dioxide equivalent

4.1.2 *No Action Alternative*

Under the No Action Alternative, the Honda Creek culvert would not be replaced. There would be no change to baseline air emissions and no additional impacts associated with the No Action Alternative. Therefore, implementing the No Action Alternative would not have a significant effect on air quality.

4.2 Biological Resources

Factors considered in determining whether implementing an alternative may result in significant impacts on biological resources include the extent or degree to which implementation of an alternative would result in the following:

- Unmitigable loss of important quantities of declining vegetation communities (including wetlands) that are considered rare;
- Impacts on endangered, threatened, or protected species; or
- Alteration of regionally and locally important wildlife corridors that would severely and permanently limit their use.

Impacts on biological resources would occur if species (endangered, threatened, rare, candidate, or species of concern) or their habitats, as designated by federal and state agencies, would be affected directly or indirectly by project-related activities. These impacts can be short- or long-term impacts; for example, short-term or temporary impacts from noise and dust during activities related to site access and water diversion or long-term impacts from the loss of habitat to support wildlife populations.

4.2.1 *Proposed Action*

Potential impacts on biological resources as a result of the Proposed Action include the following:

- Long-term (permanent) loss of habitat from construction-related activities such as access and modification to culvert outtake and intake areas;
- Loss of individuals within the work area due to excavation, crushing, or burial;
- Abandonment of breeding or roosting sites due to project-related noise and associated disturbance; and
- Disruption of foraging or roosting activities due to project-related noise and associated disturbance.

Vegetation

As discussed in Section 3.2.3 (Vegetative Resources), multiple native vegetation communities occur within the Proposed Action Area (Table 4-3). Disturbances to the native plant community in the impacted area would be unavoidable during the construction of temporary access roads, turn arounds, and laydown areas.

Upon completion of the Proposed Action, to the extent practicable, site contours and habitat types would be restored to pre-action conditions. Native vegetation would be replanted to restore areas that were predominantly vegetated and dominated by native species prior to the Proposed Action (Table 4-3). Impacts on hydric vegetation types would be further offset by performing mitigation. See Section 2.1.4 (Mitigation) for mitigation details.

Table 4-3. Status and Extent of Vegetation Types Expected to Be Impacted by the Proposed Action

Status	Vegetation Type	Action Area	
		Acres	Hectares
Native Species Dominated	Central Coastal Arroyo Willow Riparian Forest and Scrub	0.39	0.08
	Central Coastal Scrub	0.08	0.03
	Central Coastal Scrub/Iceplant	0.50	0.20
	Coastal and Valley Freshwater Marsh	0.04	0.02
	Coastal Salt Marsh	0.15	0.06
	Subtotal	***1.16***	***0.39***
Predominantly Unvegetated, Native Species Dominated	Coastal Bluff	0.06	0.02
	Coastal Strand	0.14	0.06
	Foredune	0.11	0.04
	Subtotal	***0.31***	***0.12***
Nonnative Species Dominated	Acacia	0.19	0.08

Status	Vegetation Type	Action Area	
		Acres	Hectares
	Iceplant	0.25	0.10
	Iceplant – Herb	0.26	0.10
	Nonnative Grasses and Forbs	0.32	0.13
	Subtotal	***1.02***	***0.41***
Predominantly Unvegetated, Nonnative Species Dominated	Developed	1.27	0.51
	Disturbed/Cleared	0.73	0.30
	Subtotal	***2.00***	***0.81***
	TOTAL	**4.49**	**1.73**

The small amount of native vegetation loss associated with the implementation of the Proposed Action would not be considered adverse due to the abundance of these communities within the Proposed Action's vicinity. This loss is also expected to be temporary and disturbed native dominated vegetation types restored following completion of the Proposed Action. Additionally, by implementing the EPMs in Section 2.6.1 (Biological Resources), impacts on native plant communities would be minimized to the greatest extent feasible. Any unavoidable losses would be less than significant.

No special-status plant species have been documented within the impact area of the Proposed Action during the biological surveys in support of this project or prior surveys of the project area.

General Wildlife Resources

Construction Direct Impacts

Clearing of vegetated areas for the Proposed Action would have potential adverse effects on wildlife species. A total of 0.50 ac (0.20 ha) of predominantly vegetated habitat (native and nonnative) would be removed during the Proposed Action. During vegetation clearing and construction, wildlife may be injured or killed due to use of heavy equipment.

To minimize impacts on wildlife, a qualified biological monitor would be present during vegetation removal activities to ensure the extent of the vegetation removed is limited to the minimum area necessary to accomplish project activities. In addition, any native wildlife species encountered would be moved to the nearest suitable habitat to avoid direct impacts.

If practicable, vegetation clearing would occur outside of bird nesting season. If vegetation clearing occurs during nesting season, a qualified biologist would survey the area for nesting birds and delineate buffers around any nests that are found that are of sufficient size to prevent disturbance. Additional EPMs described in Section 2.6.1 (Biological Resources) would also be implemented to further minimize and avoid impacts on wildlife resources. As a result, potential impacts on wildlife species due to construction would be less than significant.

Construction Noise Impacts

Clearing of vegetation, construction of temporary access roads and laydown areas, and repair of the culverts would also generate noise and disturbance that could result in temporary impacts on wildlife species. Temporary disturbances due to noise and human presence could disrupt foraging and roosting activities or cause wildlife species to avoid the work areas.

Wildlife species would be expected to experience some level of noise disturbance during the day; however, construction would be temporary (approximately 8 months) and create noise above ambient levels over a relatively small area. Individuals are expected to experience temporary behavioral disruption and likely acclimate to construction noises; however, if not they are expected move to adjacent suitable habitat until the noise disturbance ceases. A qualified biological monitor would be present to ensure implementation of In EPMs designed to minimize and avoid impacts on native wildlife species (see Section 2.6.1, Biological Resources). As a result, potential impacts on wildlife species resulting from construction noise would be less than significant.

Special-Status Wildlife Species

Special-status wildlife species occur or have the potential to occur within or near the Proposed Action Area. Activities associated with the Proposed Action have the potential to result in permanent and temporary adverse effects on special-status species. Table 4-4 presents a summary of potential project-related impacts on special-status wildlife species.

The Proposed Action Area is not located within designated or proposed critical habitat for any species; therefore, the Proposed Action would not affect critical habitat.

Table 4-4. Potential Impacts on Special-Status Wildlife Observed within Proposed Action Area

Species	Status		Potential Impacts
	USFWS	CDFW	
Invertebrates			
Crotch Bumble Bee (*Bombus crotchii*)	-	SCE	Direct physical impacts and loss of habitat.
Fish			
Tidewater Goby (*Eucyclogobius newberryi*)	FE	SSC	Direct physical impacts and loss of habitat.
Amphibians			
California Red-Legged Frog (*Rana draytonii*)	FT	SSC	Disturbance due to noise, direct physical impacts, potential disease transmission, and loss of habitat.
Reptiles			
Northern California Legless Lizard (*Anniella pulchra pulchra*)	-	SSC	Disturbance due to noise, direct physical impacts, and loss of habitat.
Two-Striped Gartersnake (*Thamnophis hammondii*)		SSC	Direct physical impacts and loss of habitat.

Species	Status		Potential Impacts
	USFWS	CDFW	
Western Pond Turtle (*Actinemys marmorata*)	-	SSC	Disturbance due to noise, direct physical impacts, and loss of habitat.
Birds			
Allen's Hummingbird (*Selasphorus sasin*)	BCC	-	Disturbance due to noise and loss of habitat.
Bald Eagle (*Haliaeetus leucocephalus*)	BGEPA	Fully protected	Disturbance due to noise.
Black Oystercatcher (*Haematopus bachmani*)	BCC	-	Disturbance due to noise.
Black Skimmer (*Rynchops niger*)	BCC	-	Disturbance due to noise.
California Condor (*Gymnogyps californianus*)	FE	SE	Disturbance due to noise.
Lawrence's Goldfinch (*Carduelis lawrencei*)	BCC	-	Disturbance due to noise and loss of habitat.
Loggerhead Shrike (*Lanius ludovicianus*)	BCC	SSC	Disturbance due to noise and loss of habitat.
Long-Billed Curlew (*Numenius americanus*)	BCC	-	Disturbance due to noise.
Marbled Godwit (*Limosa fedoa*)	BCC	-	Disturbance due to noise.
Nuttall's Woodpecker (*Dryobates nuttallii*)	BCC	-	Disturbance due to noise and loss of habitat.
Peregrine Falcon (*Falco peregrinus anatum*)	BCC	Fully protected	Disturbance due to noise.
Short-Billed Dowitcher (*Limnodromus griseus*)	BCC	-	Disturbance due to noise.
Whimbrel (*Numenius phaeopus*)	BCC	-	Disturbance due to noise.
Western Snowy Plover (*Charadrius nivosus*)	FT; BCC	SSC	Disturbance due to noise.
Willet (*Tringa semipalmata*)	BCC	-	Disturbance due to noise.
Yellow-Breasted Chat (*Icteria virens*)	-	SSC	Disturbance due to noise and loss of habitat.
Yellow Warbler (*Setophaga petechia*)	-	SCC	Disturbance due to noise and loss of habitat.
Mammals			
Pallid Bat (*Antrozous pallidus*)	-	SSC	Disturbance due to noise and loss of habitat.
Townsend's Big-Eared Bat (*Corynorhinus townsendii*)	-	SSC	Disturbance due to noise and loss of habitat.

Notes: BCC = federal bird of conservation concern, BGEPA = Bald and Golden Eagle Protection Act, CDFW = California Department of Fish and Wildlife, FE = federal endangered species, FT = federal threatened species, SCE = state candidate endangered, SE = state endangered species, SSC = state candidate species, USFWS = US Fish and Wildlife Service

Tidewater Goby

Potential Impacts

Activities associated with the Proposed Action have the potential to result in short-term temporary adverse effects on populations of TWG if they were to recolonize the Honda estuary lagoon and be present at the time of the Proposed Action. The activities that could directly or indirectly adversely affect TWG include movement of workers and vehicles, dewatering and water diversion activities, construction activities, and relocation of TWG individuals out of the project area.

Potential impacts associated with these activities include crushing of TWG by workers or vehicles; death or injury caused from temporary containment of the creek channel, or relocation of TWG out of the project site; downstream sedimentation smothering TWG and/or their prey base; and contamination of the waterway from vehicular leaks or improper maintenance.

Excavation and backfilling associated with the removal of vegetation and construction of access roads may cause erosion, which can lead to sedimentation and smother TWG or reduce the availability of plants and insects that serve as their habitat and food sources. Installing silt fencing, implementing BMPs, and diverting the active creek channel to ensure unimpeded flow would minimize this effect.

Accidental spills of hazardous materials, or careless fueling or oiling of vehicles or equipment, could degrade aquatic habitat or dispersal habitat to a degree where TWG are adversely affected or killed. The risk of this potential effect would be greatly reduced because the Air Force will implement a Spill Prevention Plan; store hazardous materials and stage, repair, and maintain project equipment outside of the riparian corridor in designated areas; and use catch pans or protective mats to prevent the contamination of the creek bed. EPMs designed to avoid or minimize the potential adverse effects on the maximum extent practicable would be implemented (see Section 2.6.1, Biological Resources).

Mortality, injury, and reduced fitness may occur to TWG that are captured and relocated due to improper handling, containment, a lack of familiarity with the site, increased competition, or from releasing them into unsuitable habitat. Only qualified biologists would handle TWG to minimize this risk. Suitable relocation sites would be selected within the Honda Creek watershed, which appear to support the necessary environmental conditions for TWG to maximize the likelihood of survival.

Conclusion

The USAF determined that the Proposed Action may affect and is likely to adversely affect the TWG. VAFB is updating the prenotification (813-17-0075) to the USFWS under PBO (8-8-13-F-49R; Appendix D). The updated prenotification is anticipated to be approved by the USFWS in March 2021. Although the Proposed Action may result in adverse effects on the TWG, if present, these impacts would be temporary (8 months) and affect a small proportion of available habitat. In addition, by diverting the active creek channel through a bypass pipe to avoid the construction area, potential risks of direct impacts on TWG from construction activity and

contamination will be minimized. Furthermore, given that habitat within the Proposed Action Area has not been occupied by TWG for at least the last 14 years, impacts on TWG are unlikely. Therefore, the Proposed Action would not have a significant effect on the TWG.

California Red-Legged Frog

Potential Impacts

Activities associated with the Proposed Action have the potential to result in short-term temporary adverse effects on populations of CRLF in the immediate area of disturbance. The activities that could directly or indirectly adversely affect CRLF include movement of workers and vehicles, dewatering and water diversion activities, construction activities, and relocation of individuals out of the project area.

Potential impacts associated with these activities include crushing of CRLF by workers or vehicles; death or injury caused from temporary containment of the creek channel, or relocation of CRLF out of the project site; downstream sedimentation smothering CRLF larvae; contamination of the waterway from vehicular leaks or improper maintenance; and noise disturbance.

Direct impacts on CRLF adults, subadults, and tadpoles within the project footprint include injury or mortality from inadvertent crushing by workers as they walk and operate construction equipment, by vehicles hauling or placing materials, and smothering by increased sedimentation. CRLF may also be crushed during the placement of impermeable barriers and fill material and desiccated or suffocated in a dewatered section of the creek bed. However, the risk of these potential effects would be substantially reduced because qualified biologists would capture all CRLF within the project area and relocate them outside of the project area prior to the onset of construction activities.

Excavation and backfilling associated with the removal of vegetation and construction of access roads may cause erosion, which can lead to sedimentation and smother CRLF or reduce the availability of plants and insects that serve as their habitat and food sources. Installing silt fencing, implementing BMPs, and diverting the active creek channel to ensure unimpeded flow would minimize this effect.

Accidental spills of hazardous materials, or careless fueling or oiling of vehicles or equipment, could degrade aquatic habitat or dispersal habitat to a degree where CRLF are adversely affected or killed. This effect would be greatly reduced because the Air Force will implement a Spill Prevention Plan; store hazardous materials and stage, repair, and maintain project equipment outside of the riparian corridor in designated areas; and use catch pans or protective mats to prevent the contamination of the creek bed.

All life stages of CRLF can detect noise and vibrations (Lewis and Narins 1985). Noise and vibration may cause CRLF to temporarily abandon habitat adjacent to work areas. This disturbance may increase the potential for predation and desiccation when CRLF leave shelter sites. Relocating CRLF out of the project will minimize the threat of noise disturbances

adversely affecting CRLF. Since construction activities will occur during daylight hours, construction sound is unlikely to disturb CRLF calling.

Mortality, injury, and reduced fitness may occur to CRLF that are captured and relocated due to improper handling, containment, a lack of familiarity with the site, increased competition, or from releasing them into unsuitable habitat. Only qualified biologists would handle CRLF to minimize this risk. Suitable relocation sites would be selected within the Honda Creek watershed, which appear to support the necessary environmental conditions for CRLF to maximize the likelihood of survival.

Chytrid fungus could be spread as a result of relocating CRLF if infected individuals are moved to areas where the infection does not occur. Chytrid fungus is a waterborne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of an amphibian's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. The fungus can decimate amphibian populations, causing fungal dermatitis which usually results in death in 1 to 2 weeks, but not before infected animals may have spread the fungal spores to other ponds and streams. Once a pond has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. The Air Force would reduce the risk of spreading chytrid fungus by using qualified biologists and implementing the Declining Amphibian Population Task Force's Code of Practice (USFWS 2002b).

Another indirect effect of the proposed project is the potential for an increase in the number of predators, such as raccoons (*Procyon lotor*) and opossums (*Didelphis virginiana*), at the project site. Increased human presence and the potential for human-generated and discarded trash or food to be left at the site may result in an increase in the number of predators that may disturb, injure, or kill CRLF. Disposal of all food and trash in closed containers and removal of it daily from the project site would likely minimize the number of predators attracted to the site.

The proposed project would result in the temporary loss of habitat for CRLF. A total of 0.26 ac (0.10 ha) of aquatic vegetation types are expected to be subject to temporary disturbance during the Proposed Action. Within the Action Area, creek flow would be diverted through culvert pipes and activities such as grading and use of imported fill may occur to allow vehicular access. The temporary loss of habitat may cause injury or death of individuals if they are forced into adjacent, less suitable habitat.

Impacts on CRLF habitat are expected to be largely restricted to the duration of construction. In the short term, the area of the channel temporarily diverted for construction activities would not be available for breeding or foraging habitat for the duration of construction, approximately 8 months. No permanent loss of CRLF habitat within the Action Area is expected. After culvert repairs are completed, the area will once again receive creek flow and should begin functioning as habitat again for CRLF. Disturbed areas would be restored with appropriate vegetation. Additionally, the Air Force would monitor and eradicate nonnative invasive plant species in the Action Area following the completion of the project.

Conclusion

The USAF determined that the Proposed Action may affect and is likely to adversely affect the CRLF. VAFB submitted a prenotification (813-17-0075) to the USFWS under PBO (8-8-13-F-49R; Appendix D). The prenotification was approved by the USFWS on 16 September 2020. Although the Proposed Action may result in adverse effects on CRLF, these impacts would be temporary (8 months) and affect a small proportion of available habitat. Furthermore, given the EPMs that will be employed to avoid or minimize the potential adverse effects on the maximum extent practicable (see Section 2.6.1, Biological Resources), effects on CRLF would not be significant.

Western Snowy Plover

If western snowy plovers are present on the pocket beach at the mouth of Honda Creek, they would be exposed to a short-term increase in disturbance due to noise and human presence for the duration of the Proposed Action (8 months). Visual and noise impacts from human activity may trigger a startle response or mask biologically significant sounds (e.g., predators). Given the marginal nature of the habitat present and abundant high-quality habitat to the north, snowy plovers may elect to not frequent the area until disturbance ceases. EPMs designed to avoid or minimize the potential adverse effects on the maximum extent practicable would be implemented (see Section 2.6.1, Biological Resources).

Conclusion

Although the Proposed Action may result in adverse effects on the western snowy plover, these impacts would be temporary (i.e., temporary disruption of nonbreeding behaviors) and affect a small proportion of available habitat. Furthermore, given the marginal nature of the habitat within the Proposed Action Area and infrequent use of this habitat by snowy plovers, potential impacts on the western snowy plover would not be significant and would likely be discountable.

Migratory Birds

Removing vegetation from the Proposed Action Area during the construction would result in the temporary loss of existing breeding and roosting habitat for migratory birds. However, given the abundance of suitable habitat in the vicinity, this adverse impact would be less than significant. In addition, removing vegetation during the nonbreeding season for avian species (September through February) would prevent adverse effects on these species.

Increased levels of human activity and associated noise could potentially displace special-status species from adjacent nesting habitat. Disturbances to nearby breeding birds include abandonment of breeding sites, egg breakage by “panicked” adults, physical damage to the eggs due to noise, heating and cooling from exposure during periods of nest abandonment, and increased vulnerability to predation. Impact severity would mostly depend on the timing of the activity-related disturbance. If disturbance occurs after nesting has already been initiated, project-related noise could adversely impact reproductive success.

The protection measures outlined in Section 2.6.1 (Biological Resources) should serve to avoid or minimize potential adverse effects on special-status avian species, including special-status wildlife species, during implementation of the Proposed Action. Thus, implementing these measures should result in less than significant adverse effects on avian species. Therefore, the Proposed Action would not have a significant effect on special-status avian species.

4.2.1 *No Action Alternative*

Under the No Action Alternative, the proposed repairs to the Honda Creek culverts would not be conducted. While construction and disturbances to native plant communities and special-status wildlife species would be avoided, erosion and scouring of the existing culvert structure would continue to occur as a result of high flow, especially during storm events. As a result, there would be a greater need for culvert repair in the future and the risk of failure, which could result in more serious adverse impacts on native vegetation and special-status species. Therefore, implementation of the No Action Alternative would not have an immediate significant effect on biological resources but could result in greater long-term impacts on biological resources than the Proposed Action.

4.3 Cultural Resources

The Proposed Action is subject to compliance with Section 106 of the NHPA and AFI 32-7065, *Cultural Resources Management.* Compliance with Section 106 also satisfies federal agencies' responsibilities for considering potential project-related effects on cultural resources under NEPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on cultural resources that are listed in or eligible for listing in the NRHP. If a cultural resource is listed in, or eligible for, the NRHP it is considered a "historic property" for purposes of Section 106 and is significant. Compliance with Section 106 requires the federal agency to determine either that the undertaking would have no effect, no adverse effect, or an adverse effect on historic properties (that is, to significant cultural resources). The Section 106 implementing regulations (36 CFR 800) prescribe the process for making these determinations.

Cultural resources would be adversely affected if the Proposed Action would cause loss of the value or characteristics that qualify the resource for listing on the NRHP, or if the Proposed Action substantially alters the natural environment or access to it in such a way that traditional cultural or religious activities are restricted. The Proposed Action will comply with all relevant authorities governing cultural resources, including Section 106 of the NHPA and AFMAN 32-7003. The 30 SW of the Air Force requires archaeological and Native American monitoring during construction through or adjacent to any known archaeological site, regardless of a site's NRHP eligibility. Archaeological and Native American monitoring is also typically required in areas where buried sites are possible.

If previously undocumented cultural resources are discovered during construction activities, the extent and significance of the discovery will be initially assessed by a qualified archaeologist. Recommendations for appropriate treatment of the discovery will be developed in consultation with the VAFB cultural resources manager and the Native American representative.

VAFB cultural resources staff completed the Section 106 compliance study (Smallwood and Ryan 2020) and determined that the proposed action would have no adverse effects on historic properties. The California SHPO concurred with this finding on 29 December 2020 (OHP file reference USAF_2020_1006_001; Appendix B). The following section discusses the consequences of the Proposed Action on cultural resources.

4.3.1 *Proposed Action*

A complete inventory of cultural resources, including archival research and pedestrian survey, was performed within the Project APE, which includes the area of ground disturbance plus the entirety of any cultural resources intersected by the ADI (Smallwood and Ryan 2020). The ADI intersects five archaeological sites: CA-SBA-212/H, CA-SBA-539, CA-SBA-669, CA-SBA-1119, and CA-SBA-1145/H. Four of the sites have been determined eligible for the NRHP (CA-SBA-212/H [prehistoric component only], CA-SBA-539, CA-SBA-1119, and CA-SBA-1145/H). The historic quarry component of CA-SBA-212/H has been determined not eligible for the NRHP. CA-SBA-669 has not been evaluated for significance and is assumed to be eligible for the NRHP for purposes of this analysis. The following sections discuss the consequences of implementing the project on each of these cultural resources.

CA-SBA-212/H

Project activities at CA-SBA-212/H would include equipment traffic along an existing, dirt access road through the site and use of an existing 50-by-50-foot (15-by-15-meter) area along the existing access road for temporary storage and turnaround of equipment. The road has been in use for more than 20 years and has been previously improved with fill. The proposed temporary storage and turnaround location is currently used as a designated vehicle parking area. A previous study conducted for CA-SBA-212/H documented positive shovel test probes along the access road (McKim et al. 2007). No artifacts or features were observed along the road or within the parking area during the survey conducted for this project (Smallwood and Ryan 2020). To ensure that no site deposits are affected, the project would include placement of shale road base, or similar road base material as long as it provides the same or superior environmental protection as the shale and is approved by 30 CES/CEIE and the 30 CONS CO, on the temporary storage and turnaround location. Fill and exclusionary fencing would be placed on the road through the site plus an additional 200 ft (61 m) at both ends of the site to prevent equipment from leaving the previously disturbed road footprint and potentially impacting adjacent site deposits. As a result, the Proposed Action would not impact the prehistoric component of this resource.

CA-SBA-539

Project activities at CA-SBA-539 would include iceplant mitigation within a small area at the northern tip of the site. The iceplant would be sprayed with herbicide by pedestrians; no ground disturbance would occur. Previous studies conducted for CA-SBA-539 did not identify any artifacts or features within the potential iceplant mitigation area, and none were observed

during the survey conducted for this project (Smallwood and Ryan 2020). As a result, the Proposed Action would have no adverse effect on CA-SBA-539.

CA-SBA-669

Project activities at CA-SBA-669 would include equipment traffic on an existing dirt access road along the margin of the site, and improvements to the existing ramp allowing access to the beach. The cultural resource survey conducted for the Proposed Action did not identify any features or artifacts within the ADI at this site. The project would include placement of shale, or similar, road base and exclusion fencing along the road through the site plus an additional 200 feet (61 m) at either end of the site, to prevent equipment from leaving the previously disturbed road footprint. As a result, the Proposed Action would have no adverse effect on the assumed significant qualities of CA-SBA-669.

CA-SBA-1119

Project activities within the mapped boundaries of CA-SBA-1119 would include constructing a temporary dam at the culvert inlet, and equipment access between the culvert and the dam. However, no site components exist within the high-energy environment of the streambed, where work would occur. This is verified by the results of previous studies as well as the survey conducted for this Proposed Action (Smallwood and Ryan 2020). As a result, the Proposed Action would have no adverse effect on CA-SBA-1119.

CA-SBA-1145/H

Project activities at CA-SBA-1145/H would include movement of heavy equipment along an existing gravel access road through the site and across the railroad tracks. No new development would occur within the site. Previous studies conducted for CA-SBA-1145/H did not identify any features or artifacts within in the ADI, and none were observed during the survey conducted for this project (Smallwood and Ryan 2020). As a result, the Proposed Action would have no adverse effect on CA-SBA-1145/H.

With the avoidance measures used at each of the five sites as described above, the Proposed Action would have no adverse effect on historic properties.

4.3.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs to the two Honda Creek culverts would not be conducted. Thus, cultural resources would not be affected.

4.4 Earth Resources

Factors considered in determining whether implementing an alternative may have a significant adverse impact on geology and earth resources include the extent or degree to which implementation of an alternative would do the following:

- Result in substantial soil erosion or the loss of topsoil, or
- Expose people or structures to potential substantial adverse effects, involving rupture of a known earthquake fault, strong seismic ground shaking, or liquefaction

These hazards have the potential to cause significant damage to the culverts and Coast Road even after completion of culvert repair.

4.4.1 *Proposed Action*

Implementation of the Proposed Action would require the removal of vegetation and disturbance of soil during construction for temporary access roads. These activities typically loosen the soil and tend to promote erosion during periods of wind or rainfall. Because soils in the area are subject to high wind erosion, appropriate sediment and soil control techniques would be used to minimize soil loss. Soil erosion at conclusion of the project would be prevented through the revegetation of the Proposed Action Area following the guidelines described in the Comprehensive Mitigation and Monitoring Plan for this project. In addition, the EPMs described in Section 2.6.1 (Earth Resources) would be implemented, including implementation of BMPs and preparation of a SWPPP. Therefore, based on a review of the documentation available on the geological characteristics and seismic activity of the region, no significant impacts on geology and soils are anticipated from implementing the Proposed Action.

4.4.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs to the Honda Creek culverts would not be conducted. In the foreseeable future, there would be no additional impacts on earth resources beyond the status quo; however, if the culverts caused Coast Road to fail, there would likely be significant erosion at the site and emergency road repairs or replacement would be required.

4.5 Hazardous Materials and Waste Management

Factors considered in determining whether implementing an alternative may have a significant adverse impact on hazardous materials and waste management include the extent or degree to which implementation of an alternative would result in the following:

- Noncompliance with applicable regulatory requirements, or
- Human exposure to hazardous materials and wastes, or environmental release above permitted limits

Potential impacts as a result of hazardous materials and hazardous waste were evaluated using federal, state and local regulatory requirements, contract specifications, and base operating constraints, as outlined in Chapter 3. Hazardous materials management requirements are found in federal and state environmental protection and OSHA regulations and AFI 32-7086, *Hazardous Materials Management.* Hazardous waste management requirements are found in federal, state, and local regulations and the VAFB HWMP (30 SW Plan [30 SWP] 32-7043A). Noncompliance with applicable regulatory requirements, human exposure to hazardous

materials and wastes, or environmental release above permitted limits, would be considered adverse impacts.

4.5.1 *Proposed Action*

Implementing the Proposed Action would require the use of hazardous materials. As described in Chapter 3, these hazardous materials are commonly used for construction projects, and would be the same types as currently used and managed on VAFB. Because the Proposed Action would last only 8 months and the construction team would be relatively small (approximately 11 workers), there would not be a significant increase in the amounts of hazardous materials present on VAFB. Thus, no significant adverse impacts are anticipated.

Potential adverse effects at the project site could result from accidental releases of POLs from vehicle and equipment leaks and from hazardous wastes generated by abatement actions. The contractor would be subject to hazardous materials and waste management regulations as required by federal, state and local laws and regulations, and would follow procedures as outlined in the AFI 32-7086, *Hazardous Materials Management,* and VAFB HWMP (30 SWP 32-7043A). All hazardous wastes would be properly managed and disposed of in accordance with applicable federal, state and local hazardous waste regulations, and the VAFB HWMP (30 SWP 32-7043A). Prior to project implementation, the contractor would prepare a hazardous material Spill Prevention and Response Plan and obtain concurrence from 30 CES/CEI. All hazardous wastes would be managed either during release response and cleanup, or during abatement removal actions. In addition, the EPMs described in Section 2.1.4.6 (Hazardous Materials and Waste Management) would be implemented. As a result, the Proposed Action would not have a significant impact caused by the use and generation of hazardous materials and hazardous wastes.

4.5.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs would not be conducted. The No Action Alternative would create no additional hazardous materials or waste on VAFB than exist in current baseline conditions. Therefore, no significant impacts on hazardous materials or waste management would occur in the foreseeable future. However, if the culverts were to cause Coast Road to fail, hazardous materials that are part of the existing structure may be released unabated into Honda Creek, potentially causing a significant impact on biological resources and human health and safety.

4.6 Solid Waste Management

Factors considered in determining whether implementing an alternative may have significant adverse impacts on solid waste management include the extent or degree to which implementation of an alternative would result in noncompliance with applicable regulatory requirements.

Solid waste impacts were evaluated using federal, state, and local regulatory requirements, permit conditions, contract specifications, the VAFB Solid Waste Management Guide, and operating constraints as outlined in Chapter 3.

4.6.1 *Proposed Action*

Activities at the Proposed Action Area would involve excavation of approximately of sediment and vegetation removal. It is unknown as to how much sediment would be removed and how much new material (i.e., fill soil), would be needed to conduct repairs and to stabilize the temporary access roads. The contractor would determine material requirements and quantities once the repair design is complete.

The generation of C&D debris during implementation of the Proposed Action does not have the potential to adversely affect waste diversion rates on VAFB as disposal of any solid waste would be transported to a municipal landfill. Unrecyclable wastes generated during construction and demolition would be disposed of off base by the contractor. However, to the greatest extent practicable, the contractor would segregate all waste generated during the Proposed Action and manage the wastes separately. To the extent practicable, C&D would be reused or transported to a recycler. In addition, all metals would be recycled at the VAFB Materials Diversion Center. Soils that are not reused at the Proposed Action Area would be transported to an on-base borrow pit for storage and use on future VAFB projects.

The evaluation of potential P2 impacts includes solid waste diversion requirements, particularly as applied to demolition debris. Noncompliance with applicable regulatory requirements or disposal of quantities of solid waste that would cause the proposed project to exceed mandated diversion rates would be considered an adverse impact. Debris would be segregated to facilitate subsequent P2 options. P2 options would be exercised in the following order: reuse of materials, recycling of materials, and then regulatory compliant disposal.

Compliance with all applicable federal, state and local regulations, rules and requirements, and applicable VAFB plans would govern all actions associated with implementing the Proposed Action; therefore, no significant effects on solid waste management are anticipated.

4.6.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs would not be conducted. Because solid wastes would not be generated, there would be no significant impact on solid waste management in the foreseeable future. However, if the existing culverts were to cause Coast Road to fail, concrete, asphalt, and other materials would likely be released into Honda Creek, requiring emergency retrieval and proper disposal as well as a large influx of waste onto VAFB infrastructure without the benefits of planning. Additionally, retrieval of all materials would be unlikely. Therefore, if Coast Road were to collapse, it would likely result in significant impacts on solid waste management on VAFB.

4.7 Human Health and Safety

Factors considered in determining whether implementing an alternative may have a significant adverse noise impacts include the extent or degree to which implementation of an alternative would expose people to noise levels in excess of applicable standards, or at levels that may be harmful.

4.7.1 *Proposed Action*

Construction sites, in general, can be dangerous to the public. For the activities associated with the Proposed Action, the contractor would comply with federal OSHA and AFOSH regulations, as required and appropriate, to provide for the health and safety of the public who may be exposed to the operations, hazardous materials in use, and hazardous wastes generated and transported. Therefore, human health and safety would not be adversely impacted by general construction hazards.

Section 2.1.4.6 (Hazardous Materials and Waste Management) describes health and safety guidelines that would be implemented in the handling and transportation of hazardous materials and waste. Several known health and safety issues occur within the Proposed Action Area:

- The Proposed Action Area is in the floodplain and specifically within and adjacent to the creek bed of Honda Creek, which is prone to flooding during significant rain events.
- Physical hazards, including holes or ditches, uneven terrain, sharp or protruding objects, slippery soils or mud, quicksand, loose soil, steep grades, and unstable ground are or could be present throughout the Proposed Action Area.
- Biological hazards, including vegetation (i.e., poison oak and stinging nettle), animals (i.e., insects, spiders, and snakes), and disease vectors (i.e., ticks, rodents), exist at and in the vicinity of the Proposed Action Area and have the potential to adversely impact human health and safety.

Adherence to federal OSHA and AFOSH regulations would minimize the exposure of the public to these hazards, and result in no significant effects as they relate to human health and safety from the Proposed Action.

4.7.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs would not be conducted. Therefore, there would be no human health and safety impacts resulting from project activities. However, if the culverts were to cause failure of Coast Road, access would be impeded. This would result in a significant impact to health and safety of personnel at VAFB since emergency vehicle access would be impeded from quickly accessing some portions of VAFB.

4.8 Noise

Factors considered in determining whether implementing an alternative may have a significant adverse noise impacts include the extent or degree to which implementation of an alternative would expose people to noise levels in excess of applicable standards, or at levels that may be harmful.

4.8.1 *Proposed Action*

The Proposed Action Area is located at the crossing point of Honda Creek under Coast Road. The immediate vicinity is currently undeveloped. Existing noise levels near this project site are low due to the large areas of undeveloped landscape and sparse noise sources.

The Proposed Action would temporarily increase the ambient noise levels within the Proposed Action Area and in neighboring areas during project implementation activities. Relatively continuous noise would be generated during project activities. These continuous noise levels are generated from equipment that has source levels (at 3.28 ft [1m]) ranging from approximately 70 to 110 dB. As a sound source gets further away, the sound level decreases. This is called the attenuation rate. The rates are highly dependent on the terrain over which the sound is passing and the characteristics of the medium in which it is propagating. The rate used in these estimates was a decrease in level of 4.5 dB per doubling of distance. This average rate has been shown to be an accurate estimate from field data on grassy surfaces (Harris 1998). At 164 ft (50 m) these levels range from 50 to 95 dB. Typical noise levels of heavy construction equipment are presented in Table 4-5.

Table 4-5. Noise Levels of Heavy Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 Feet (dBA)
Front End Loader	79-80
Excavator	81-85
Crane	75–87
Dump Truck	76-84

Source: US Department of Transportation 2016
Note: dBA = A-weighted decibel

The project site is not located adjacent to inhabited areas; therefore, it is not likely that sensitive receptors exist within the vicinity of the Proposed Action Area. Adverse impacts as a result of noise are expected to be less than significant.

4.8.1 *No Action Alternative*

Under the No Action Alternative, the proposed repairs would not be conducted. Therefore, there would be no noise impacts that would expose people to unsafe or undesirable noise levels resulting from project activities. However, if the culverts were to cause Coast Road to fail, there would likely be significant increases in noise at the site associated with emergency road repairs or replacement.

4.9 Transportation

Factors considered in determining whether implementing an alternative may have significant adverse impacts on transportation include the extent or degree to which implementation of an alternative would do the following:

- Result in the inability of the primary roadway to service existing traffic demands, or
- Result in a traffic to shift to a roadway that was incompatible with those traffic increases (e.g., inadequate pavement structure or design capacity) or could cause potential safety hazards

The criteria for determining the significance of project-generated traffic were obtained in part from Santa Barbara County Planning and Development Department (SBCPD) guidelines (SBCPD 2008). Impacts would be considered adverse if:

- The addition of project trips at an intersection causes an increase in the V/C ratio by the value shown in Table 4-6. Project traffic would use a substantial portion of an intersection(s) capacity where the intersection is currently operating at acceptable levels of service (A to C) but with cumulative traffic would degrade to or approach LOS D (V/C 0.81) or lower. Substantial is defined as a minimum change of 0.03 for intersections that would operate from 0.80 to 0.85 and a change of 0.02 for intersections that would operate from 0.86 to 0.90, and 0.01 for intersections operating at anything lower.
- Project access to a major road or arterial road would require a driveway that would create an unsafe situation or a new traffic signal or major revisions to an existing traffic signal.
- The project adds traffic to a roadway that has limiting design features or receives use that would be incompatible with substantial increases in traffic, which would become a potential safety problem with the addition of project or cumulative traffic. Limiting design features include, but are not limited to, narrow width, roadside ditches, sharp curves, poor sight distance, and inadequate pavement structure. Examples of roadways receiving incompatible use include: a large number of heavy trucks on rural roads used by farm equipment, livestock, horseback riding, or residential roads with heavy pedestrian or recreational use.

Table 4-6. LOS Significance Thresholds

LOS	Threshold
A	An increase of V/C > 0.20
B	An increase of V/C > 0.15
C	An increase of V/C > 0.10
D	Adding 15 trips to baseline conditions
E	Adding 10 trips to baseline conditions
F	Adding 5 trips to baseline conditions

Note: LOS = Level of Service, V/C = volume to capacity

4.9.1 *Proposed Action*

Given the short-duration, low ADT volumes and good LOS currently experienced on the roadways that would be affected by project activities on VAFB and its vicinity, and the relatively small increase in daily truck traffic that would be generated by the Proposed Action, no adverse effects on capacity would occur in the Proposed Action Area roadways. However, brief restrictions of traffic may occur occasionally throughout the projects' duration. Alternate routes during this time would not be necessary. All roadway sections would continue to operate at an LOS in the range of A to B with project-added traffic. Increased truck activity affects the integrity of roadway sections by increasing the flexures of the pavement. The design life for asphalt pavement, generally selected as either 10 or 20 years, drives engineering specifications for the road based upon the strength of the base soil and the Traffic Index for the design life. The Traffic Index is calculated based upon the number of truck trips that are expected during the design life of the pavement. The theory states that the pavement, during its lifetime, can tolerate a finite number of flexures due to loaded trucks. If the number of truck trips is increased, the life of the pavement is shortened. For example, if a 20-year design were based upon an AADT of 1,000 trucks for 20 years and the volume increases to 2,000 ADT, the structural life of the pavement would be reduced to 10 years. While the current condition of the pavement on all of the affected roads is fair to good, added truck traffic could cause faster-than-estimated deterioration of the pavement surface and require additional maintenance. Although an adverse effect, it would not be considered significant given that the number of truck trips per day anticipated from the Proposed Action is not high. Therefore, the Proposed Action is not anticipated to create any significant impacts on transportation. In addition, the recommended EPMs, described in Section 2.1.6 (Transportation), would further reduce the potential for adverse effects on transportation.

4.9.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs would not be conducted. Therefore, there would be no effect on existing transportation beyond baseline conditions. However, if the failure of the existing culverts were to cause Coast Road to collapse, traffic would be forcibly diverted to other roads, and this would result in an interruption of mission-essential transportation on VAFB. In addition, such a situation would result in emergency repair involving intensive construction activities. Such an action could affect local traffic conditions and cause significant impacts on local transportation routes.

4.10 Water Resources

Factors considered in determining whether implementing an alternative may have significant adverse impacts on water resources include the extent or degree to which implementation of an alternative would do the following:

- Cause substantial flooding or erosion;

- Reduce surface water quality of creeks, rivers, streams, lakes, or the ocean; or
- Reduce surface or groundwater quality or quantity

4.10.1 *Proposed Action*

Construction General Permit coverage under Section 402 of the CWA is required if the Proposed Action disturbs 1 acre or greater of soil, including laydown atop soil that potentially discharge to WOTUS. The total area that may be disturbed by the Proposed Action is up to 2.27 ac (0.92 ha). Therefore, the Proposed Action may require Construction General Permit coverage. Being less than 5 acres, the Proposed Action may qualify for a Rainfall Erosivity Waiver if the risk factor calculations result in a rainfall erosivity factor of less than 5.

A CWA Section 401 water quality certification from the RWQCB and CWA Section 404 permit from the USACE would be required under the Proposed Action because it involves dredge or fill in water bodies or wetlands. VAFB and the contractor would follow the conditions of the CWA Section 401 water quality certification. All permit conditions and EPMs described in detail in Section 2.1.6 (Water Resources) would be implemented to minimize the potential for adverse impacts on local water resources. The contractor would incorporate these requirements into work practices and procedures to ensure compliance for all project-related activities. In addition, the CWA Section 401 and Section 404 water quality certification include compensatory mitigation requirements and success criteria must be met through restoration and site maintenance.

With the implementation of the CWA Section 401 and Section 404 water quality certification conditions, restoration at the mitigation area, and EPMs described in Section 2.1.6 (Water Resources), adverse effects on water resources would be less than significant.

Surface Water and Floodplains

Surface water quality of the Pacific Ocean and Honda Creek could potentially be temporarily degraded as a result of erosion, contaminant or sediment discharge during the construction of the temporary access road, water diversion, vegetation removal, creation of laydown areas and turn-around site, and the installation of the liner in the culvert. Project-related activities would occur partially in and adjacent to water bodies (Honda Creek and the Pacific Ocean), and discharge of sediment and erosion may occur from constructing the temporary access road along the beach and in the creek bed as well as vehicular and foot traffic within the channel. Disturbances to the creek banks and the creek bed as a result of removing vegetation, loosening and exposing soils, and stockpiling materials during project implementation may result in increased erosion and sediment load. During the construction of diversion dams to bypass water through each culvert while the other is repaired may also cause temporary and localized increases in turbidity and sedimentation.

However, potential increases in erosion and sedimentation in the vicinity of the Proposed Action area would be minimized by implementing the EPMs described in detail in Section 2.1.6 (Water Resources). Containment of the active channel through a bypass pipe would minimize the exposure of creek water to any project-related contaminants. In addition, installing erosion

control devices as appropriate, working outside of the channel during significant rainfall and runoff, and revegetating the site immediately upon completion of construction will minimize any potential erosion and sedimentation. Therefore, the risk of potential sediment loading would be significantly reduced through the soil stabilization and revegetation of project-affected areas.

Construction-related contaminants, such as an oil leak from a vehicle, would be minimal and any accidental spills would be localized. All hazardous wastes would be managed and disposed of in accordance with applicable federal, state, and local hazardous waste regulations to include the VAFB HWMP. The contractor would follow a Spill Prevention and Response Plan, have spill kits readily accessible, and clean up spills immediately and dispose of them properly. Maintenance and refueling of equipment would occur in the staging areas outside of the channel; however, if it is necessary to refuel or repair equipment within the riparian corridor, secondary containment materials would be used and a USFWS-qualified biologist would be present to monitor activities. Hazardous materials would be stored in proper containers, covered prior to rain events, within the staging areas outside the creek bed. Grout pumped from a concrete truck on Coast Road would be used to grout the HDPE liner in place inside the culverts. The grout used around the pipe liners would be properly managed to prevent accidental discharge. Any grout washout water would be contained for evaporation in a temporary pit in the staging area or trucks would be washed out off-base. All refuse and construction debris would be properly handled, stored, and removed from the site as soon as possible. As a result, the Proposed Action is not anticipated to have a significant effect on surface water quality.

The Proposed Action is located partially within the Honda Creek floodplain, but the limits of the floodplain would not be altered by the project activities. The 100-year floodplain limit and duration of flooding within the Proposed Action Area would remain approximately the same as those currently present. The reinforcement and improvement of flow through the culverts would eliminate the risk of collapse and therefore reduce the risk of potentially significant scour and erosion in the floodplain by improving the structural integrity of the culverts. To avoid potential short-term impacts on the hydrology of the creek, the active creek channel at the Proposed Action Area would be temporarily contained in a bypass pipe, allowing for unimpeded flow through the work area. Therefore, due to the scope of work, there is no reasonable alternative to achieving the desired outcome without potentially and temporarily increasing impacts on floodplains and wetlands by implementing the Proposed Action.

The Proposed Action would not have any significant negative effects on the floodplain of Honda Creek and may have beneficial effects since installing liners would allow less-restricted flow through the creek than the existing conditions, reducing erosion/sedimentation and decreasing the possibility of culvert failure. Therefore, the Proposed Action is consistent with EO 11988 because it seeks to maintain an existing culvert needed for access to South VAFB, to withstand a 100-year flood event and thereby ensuring federal funds are spent in consideration of the risk of flood hazards while also ensuring that adverse effects on the floodplains are minimized. Therefore, the Proposed Action is not likely to result in significant impacts on floodplains.

Groundwater

Groundwater is not likely to be encountered under the Proposed Action as no project activity requires removing soil or excavating to a depth that would disturb groundwater. Therefore, the Proposed Action is not anticipated to have a significant effect on groundwater resources. Potential impacts on groundwater from the accidental release of hazardous materials within Honda Creek do exist. However, with the EPMs outlined in Section 2.1.6 (Water Resources), it is unlikely that such an event would occur; therefore, the Proposed Action is not anticipated to have a significant effect on groundwater resources.

Waters of the United States, Waters of the State, and Wetlands

EO 11990, *Protection of Wetlands*, is focused on minimizing the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. EO 11990 requires an evaluation of alternatives prior to proceeding with federal actions that may affect wetlands. During repair activities associated with the proposed project, only temporary effects on potential WOTUS and WOTS would occur; no permanent impacts are proposed. These temporary impacts consist of construction of a temporary access road that passes along the beach and into the main channel below the culverts, and disturbance at the inlet end of the culverts which may consist of channeling flow through one culvert at a time and staging of personnel and material for positioning and grouting the liners (Figures 4-1 and 4-2). Activities at the culvert inlet may include vegetation removal, sediment removal, damming and dewatering portions of Honda Creek, and foot traffic through the culverts and in the inlet.

The temporary access road passes through marine intertidal unconsolidated shore (beach), potential nonwetland WOTUS below the HTL and OHWM, and palustrine emergent wetland (Figure 4-1). The disturbed area at the culvert inlet is in potential palustrine emergent wetland and nonwetland WOTUS. A total of 0.44 ac (0.18 ha) of these resources will be impacted by the temporary access road or the disturbance at the culvert inlet (Table 4-7). Impacts on potential WOTS will be similar to impacts on potential WOTUS, though slightly greater in extent because of the larger area of state jurisdiction within the project footprint (Figure 4-2). In addition to the potential WOTUS that are also state jurisdictional waters through which the temporary access road passes, it will also pass through potential WOTS in the form of a riparian zone (Figure 4-2). The total area of disturbed potential WOTS is 0.71 ac (0.29 ha) (Table 4-8).

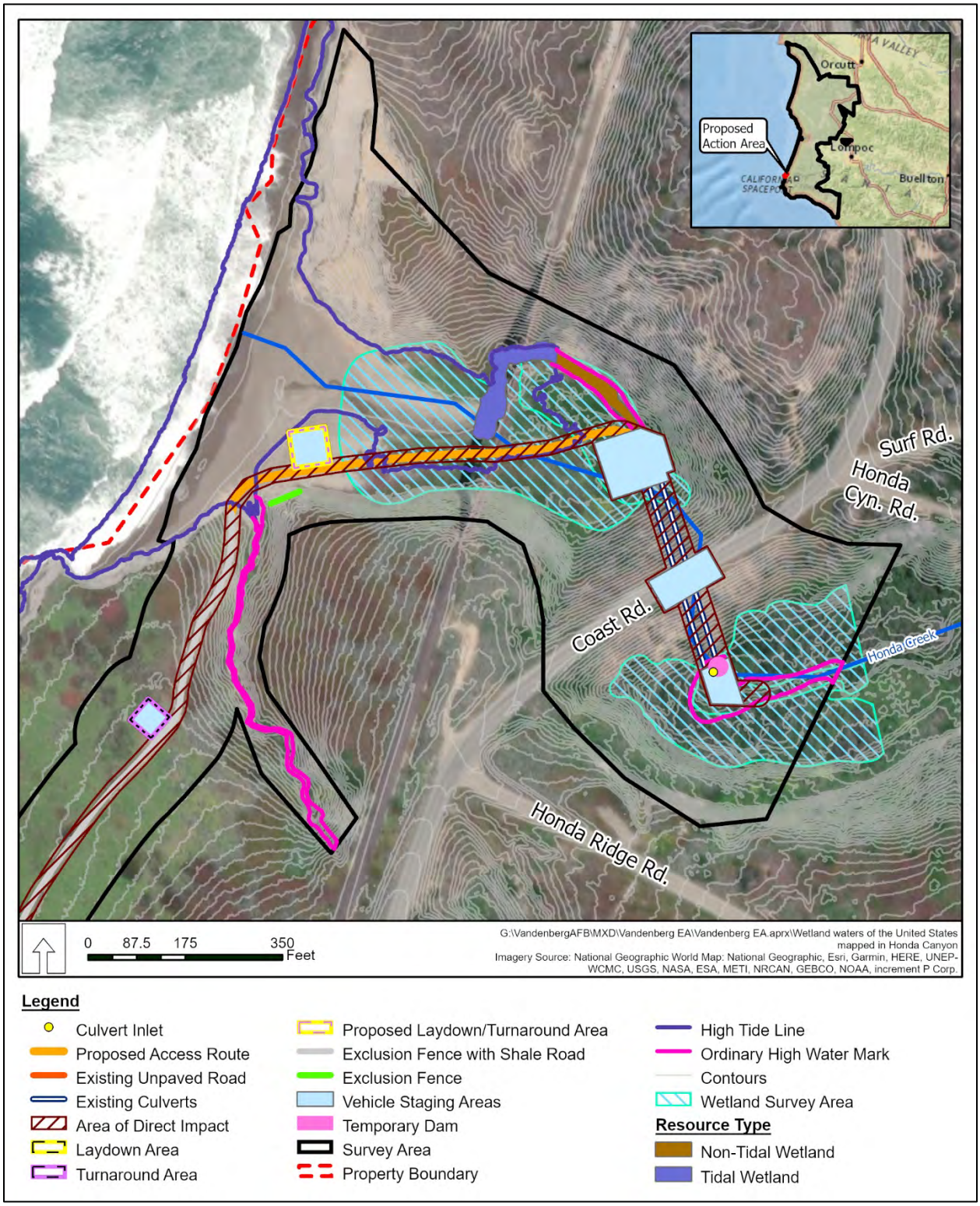

Figure 4-1. Impacts on Waters of the United States from the Proposed Action

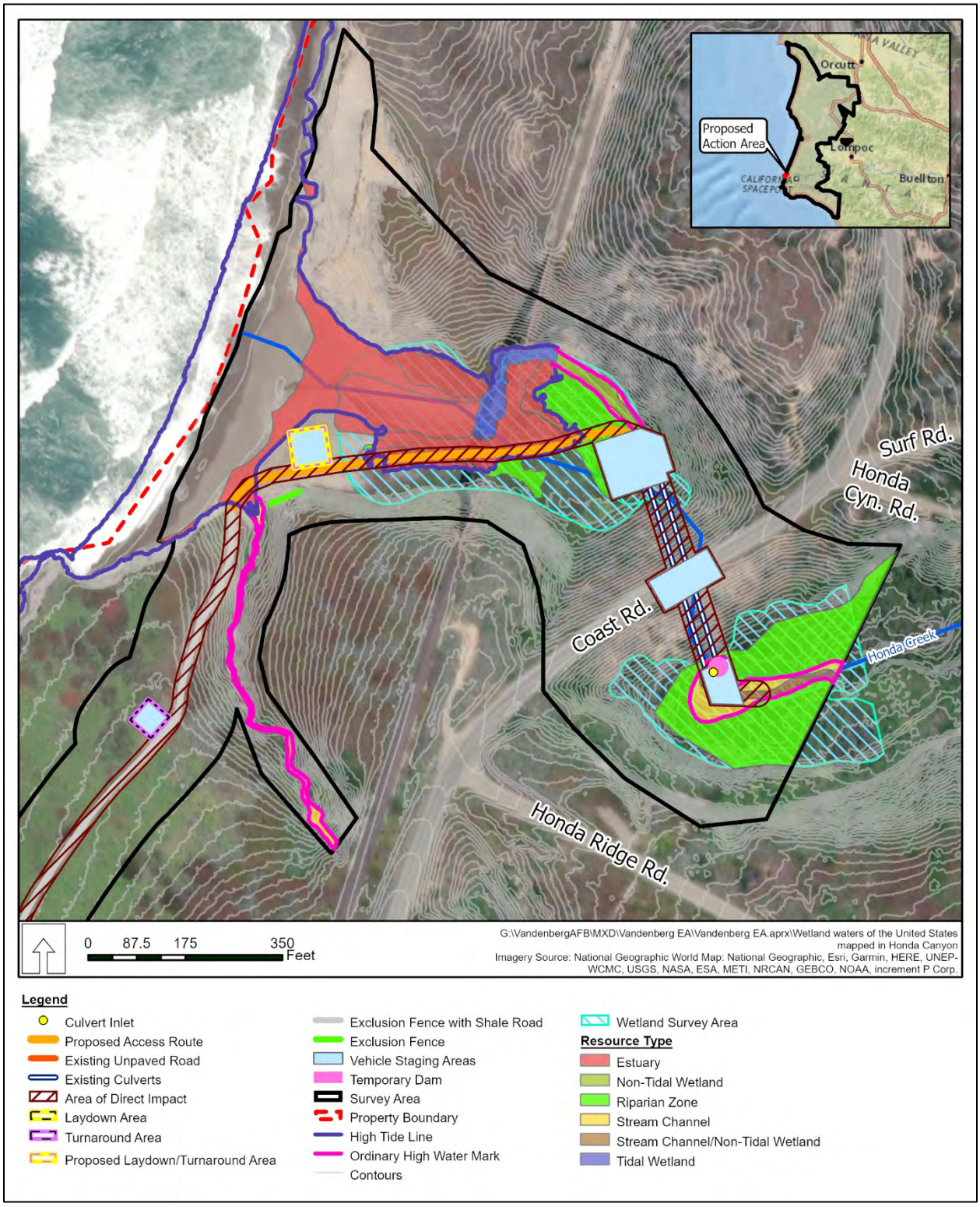

Figure 4-2. Impacts on Waters of the State from the Proposed Action

Table 4-7. Potential Waters of the United States Temporarily Affected by the Proposed Action

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)	Length of Temporary Impacts (linear feet)
Non-Tidal Wetland	1,792.14	0.04	171
Other	16,208.12	0.37	737
Perennial Stream/River	1,376.51	0.03	100
TOTAL	**19,376.76**	**0.44**	**1,008**

Table 4-8. Potential Waters of the State Temporarily Affected by the Proposed Action

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)	Length of Temporary Impacts (linear feet)
Estuary	10,742.37	0.25	455.00
Non-Tidal Wetland	1,792.14	0.04	168.00
Riparian Zone	11,734.64	0.27	373.00
Stream Channel	5,474.02	0.13	266.00
Stream Channel/ Non-Tidal Wetland	1,376.51	0.03	101.00
TOTAL	**31,119.68**	**0.71**	**1,363.00**

All of the temporarily disturbed habitat would be restored after repair activities have been completed. In addition, wetland mitigation would be implemented (see Section 2.1.4, Mitigation). As a result, the Proposed Action would not have a significant impact on potential WOTUS, WOTS, or wetland resources.

4.10.2 *No Action Alternative*

Under the No Action Alternative, the proposed repairs of the Honda culverts would not be conducted. Therefore, no impacts on water resources would occur. However, if the existing culverts were to fail, the water quality of Honda Creek downstream of Coast Road would be adversely affected by debris, bank erosion, and emergency road and culvert repairs. In addition, culvert failure is likely to cause scour and erosion that would alter the hydrology of the floodplain.

4.11 Cumulative Impacts

The effects of the Proposed Action and No Action Alternative in combination with the effects of other relevant past, present, and reasonably foreseeable future projects have been evaluated in this cumulative effects analysis. A list of relevant past, present, and reasonably foreseeable projects that have been/would be constructed on VAFB is provided in Table 4-9. The foregoing analysis is based on the same resource thresholds as discussed in Sections 4.1 to 4.10.

4.11.1 *Past, Present, and Reasonably Foreseeable Future Actions in the Region of Influence*

The ROI for the Proposed Action is defined as the area over which effects of the Proposed Action could contribute to cumulative impacts on the environment. Therefore, the ROI includes both North and South VAFB. Future large projects on VAFB that are currently projected for the next several years have the greatest potential to result in cumulative impacts. VAFB projects contain environmental contract specifications and are individually evaluated for their environmental impacts. Based on the environmental impacts associated with each specific project, environmental protection measures and requirements are included in the project activities to reduce adverse environmental effects. Thus, individually implemented measures provide cumulative protection reducing overall adverse effects on VAFB environmental resources. Table 4-9 lists the past, present, and reasonably foreseeable future federal and private actions that may contribute to cumulative effects of the Proposed Action and may be under construction at the same time as the Proposed Action.

Table 4-9. Federal and Private Projects

Federal Projects	Status
13th Street Bridge Replacement	NEPA process complete. Action completed in 2017.
Falcon 9 and Falcon 9 Heavy Launch Vehicle Programs from Space Launch Complex 4 East	NEPA process complete. Actions ongoing.
Boost-back and Landing of the Falcon 9 First Stage at SLC-4 West and Offshore	NEPA process complete. Actions ongoing.
Atlas V System from SLC-3E	NEPA process complete. Actions ongoing.
D1 Powerline Replacement	NEPA process complete.
Installation of Cabins at Wall Beach	NEPA process complete.
Repairs to San Antonio Road West Bridge	NEPA process complete. Actions starting soon.
Honda Creek Culverts Repair	NEPA process under way.
Increasing the Number of Small Launch Vehicle launches at VAFB	NEPA process under way.
Golf Course	NEPA review under way.
Blue Origins	NEPA process beginning.
SLC-2 Deactivation	NEPA process beginning.
Private Projects	**Status**
Union Pacific Railroad Bridge Trestle Replacement at **the Honda Estuary**	NEPA process under way.

Notes: VAFB = Vandenberg Air Force Base, NEPA = National Environmental Policy Act

4.11.2 *Proposed Action*

Air Quality

VAFB has several other construction or demolition projects proposed or underway in the ROI for the Proposed Action. Air emissions from other projects would be localized and short-term in nature. Long-term emissions from the projects are not anticipated to increase. Cumulative emissions from the Proposed Action combined with other concurrent construction projects and

launch operations would not exceed the significance thresholds in Santa Barbara County and would not produce any significant cumulative air quality impacts. This determination was made by reviewing the total emissions of this project with the cumulative emissions from all planned concurrent projects.

Biological Resources

The Proposed Action and other construction and launch projects that involve ground-disturbing activities and noise could have temporary and localized effects on biological resources. Cumulative adverse impacts could result if concurrent projects, along with the Proposed Action, cause disturbances to special-status species or their habitats. Implementation of the Proposed Action would result in a temporary loss of habitat, potential loss of individuals of special-status species, and potential disruption of foraging and breeding activities. Although the Proposed Action and other concurrent projects may disturb wildlife, these disturbances would be temporary, and wildlife would continue to use habitat in the periphery of the projects. Through habitat restoration and mitigation, the implementation of the EPMs listed in Section 2.1.6 (Biological Resources), and the requirements stated in the PBO and Biological Opinions issued by the USFWS for these projects, potential adverse effects would be less than significant and would not affect special-status species populations. Additionally, VAFB routinely implements projects and specific measures and procedures set forth in the INRMP (Air Force 2011), which tend to ensure project-specific and cumulative adverse effects on biological resources are avoided and minimized. As a result, the Proposed Action, in combination with other past, concurrent, and planned activities, should not result in significant adverse cumulative impacts on biological resources.

Cultural Resources

Implementing the Proposed Action and other construction activities on VAFB involving activities that disturb intact, native soils or demolish structures over 50 years of age could result in impacts on cultural resources. Cumulative impacts would result if maintenance activities cause major ground disturbances in areas of high paleontological sensitivity or in areas that may contain intact subsurface prehistoric or historic archaeological resources. VAFB completed an archaeological site record and literature search and conducted a pedestrian survey of the project area. Background research identified 46 previous studies within 100 feet (30 meters) of the APE. The ADI intersects five archaeological sites: CA-SBA-212/H, CA-SBA-539, CA-SBA-669, CA-SBA-1119, and CA-SBA-1145/H. Four of the sites have been determined eligible for the NRHP (CA-SBA-212/H [prehistoric component only], CA-SBA-539, CA-SBA-1119, and CA-SBA-1145/H). However, with the avoidance measures in place at each of the five sites as described in Section 4-3, the Proposed Action would not result in significant adverse cumulative impacts on historic properties.

EPMs would be implemented to minimize impacts on sensitive archaeological resources. If cultural resources are discovered during project-related ground-disturbing activities, all excavation will be halted until the significance of the find is assessed. Significant adverse cumulative impacts from other projects and the Proposed Action are not expected.

Earth Resources

Other projects at VAFB involving grading, excavations, and construction or demolition could result in erosion-induced sedimentation of adjacent drainages and water bodies. Potential cumulative effects would include an increase in soil disturbance associated with construction, demolition, and road building activities that could substantially increase erosion, landslides, soil creep, mudslides, and unstable slopes. These impacts would be minimized by the use of BMPs and site restoration to minimize soil erosion and reduce fugitive dust. Erosion-induced sedimentation of surface drainages could occur as a result of other proposed and active projects at VAFB.

All projects located in the region are subject to seismically induced ground shaking due to an earthquake on a local or regional fault. By incorporating modern construction engineering and safety standards, all adverse seismic-related impacts at the project site, as well as the projects in the region, should be avoided. Therefore, the Proposed Action would not result in significant adverse cumulative impacts on geology and earth resources.

Hazardous Materials and Waste Management

Management of any hazardous materials for all projects would occur under compliance with AFI 32-7086, and emergency responses to spills would follow the Hazardous Materials Emergency Response Plan. Projects must also follow the Integrated Solid Waste Management Plan (SWMP). EPMs would be implemented to minimize hazardous materials or hazardous waste management impacts. The Proposed Action would not contribute to cumulative effects on hazardous materials and wastes in or around VAFB. The Proposed Action and other projects would not result in significant cumulative impacts.

Solid Waste Management

The projects listed in Table 4-9 along with the Proposed Action, would result in an overall increase in solid waste generation resulting from construction, renovation, and demolition. Solid waste would be minimized by compliance with VAFB's Integrated SWMP and the implementation of EPMs, including segregating, reusing, and recycling waste to the greatest extent practicable, would reduce cumulative impacts of solid waste. Local landfills would be able to process the projected temporary cumulative increases in solid waste. No significant cumulative impacts on solid waste management are expected.

Human Health and Safety

The Proposed Action and other concurrent projects on VAFB could result in increased risks to human health and safety. Implementation of the Proposed Action and other similar actions at VAFB would slightly increase the short-term risk associated with construction contractors performing work at project locations. Contractors would be required to establish and maintain safety programs that would provide protection to their workers and limit the exposure of Base personnel to construction hazards. Impacts would be minimal and confined to the immediate project site. The safety program would include coordination with the Air Force Civil Engineer

Center/Comprehensive Zoning Ordnance Military Munitions Response Program manager and contact with the weapons safety specialist for 30 SW, Weapons Safety Office for information on VAFB policies on UXO safety for construction work at VAFB. With implementation of required safety measures, there would be no significant cumulative impacts resulting from the Proposed Action and other anticipated projects.

Noise

Construction and demolition activities within the Proposed Action Area and for other projects would result in temporary, intermittent impacts localized to each project site. Construction projects are typically temporary in duration and the noise impact from the Proposed Action would not be a major contributor to the noise setting on VAFB. In addition, the other proposed and active projects listed in Table 4-9 are not located in the immediate vicinity of the Proposed Action and would therefore would not interact with the Proposed Action to produce a cumulative noise impact.

Coastal Zone Management

The Proposed Action would not adversely affect land use or CZMA and CCA policies. The other proposed and active projects identified in Table 4-9 are all on VAFB and would conform to Air Force regulations and planning principles or comply with county/state requirements. Cumulative projects would be modified during the project review process to ensure compatibility with existing land uses and consistency with management plans. These projects have been and would be assessed separately under NEPA and the effects would be analyzed and disclosed. The Proposed Action and other cumulative projects are not expected to result in significant adverse cumulative effects on land use or coastal zone resources.

Transportation

Cumulative construction and demolition projects on VAFB would contribute to increased traffic volumes in the region. However, given the low ADT volumes and good LOS currently experienced on the roadways that would be affected by project activities on VAFB and its vicinity, and the relatively small and temporary increase in daily truck traffic that would be generated by the Proposed Action, no cumulative adverse effects on capacity are expected to occur as a result of the Proposed Action.

Water Resources

Cumulative impacts on water resources could occur if other projects were to inadequately address effects on water resources at project locations. However, projects on VAFB, including the Proposed Action, are required to utilize site-specific BMPs and conduct site restoration, as necessary, to minimize impacts on water quality. Impacts tend to be localized and temporary during the project duration. In addition, VAFB would follow the conditions of the CWA 401 Water Quality Certification. Therefore, the Proposed Action would not contribute to cumulative negative effects on water resources.

4.11.3 *No Action Alternative*

Under the No Action Alternative, the proposed culverts repair would not occur. Therefore, no cumulative impacts would be expected on any resources in the short term. However, if the bridge were to fail, significant adverse impacts on the environment would be expected. Since failure would likely occur in an unplanned fashion, it would necessitate emergency repairs or demolition and replacement. Without the benefit of environmental planning and review, this scenario would likely result in significant impacts on biological resources, earth resources, hazardous materials and waste, human health and safety, solid waste management, transportation, and water resources and therefore have a significant adverse contribution to cumulative effects on the environment.

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Copies of the Notice of Availability for Public Review, Proof of Delivery/Publication, Comments Received on the Final Draft, and Responses are provided in Appendix I.

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APPENDIX A. Interagency and Intergovernmental Coordination for Environmental Planning

FORMAT PAGE

LOMPOC RECORD

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Activate your digital account at **lompocrecord.com/activate** to stay up to date on all of the news, including ongoing COVID-19 updates.

LOTTERY

To see Saturday's Lottery numbers, including those for Mega Millions, Powerball and Superlotto, go to lompocrecord.com.

Lompoc judge upholds charges in killing of 15-year-old Erik Vargas

DAVE MINSKY
dminsky@santamariatimes.com

A Lompoc judge has upheld the charges against a man accused of the gang-related killing of a 15-year-old youth in October 2019.

Judge Raimundo Montes de Oca upheld three felony charges, including one count of first-degree murder and two counts of attempted murder, against Raymond Ramon Vega, 26, of Lompoc, who is accused of killing Erik Vargas on Oct. 12, 2019.

Additionally, Vega was charged with three enhancements, including participating in a criminal street gang and discharging a firearm in commission of a felony. His case now proceeds to trial.


Vega

Vega, a reported member of Lompoc's VLP gang, pleaded not guilty to all charges on Oct. 18, 2019.

Lompoc Police responded to a report of a shooting in the 700 block alley of North F and G streets shortly before 10:30 p.m. on Oct. 12 and discovered three victims suffering from gunshot wounds, said Officer David Garza.

Lompoc man arrested Friday on suspicion of soldier's murder

SANTA MARIA TIMES STAFF REPORT

A Lompoc man suspected of murdering a U.S. soldier last year and committing two other shootings was arrested Friday night following a seven-hour standoff at a home a few blocks from Minami Park, according to the Lompoc Police Department.


Morales

Walter Morales, 26, was eventually forced out of the house in the 1500 block of South Thornburg Street about 6:30 p.m., taken into custody on a homicide warrant and later booked into Santa Barbara County Jail, a Lompoc police spokesman said.

Morales is a suspect in the death of Marlon Brumfield, 22, a U.S. Army soldier who was home on leave from Germany when he was killed in a gang-related shooting Sept. 8, 2019, near the intersection of North A Street and East Ocean Avenue in Lompoc, the spokesman said.

Morales also was allegedly spotted following two separate shooting incidents July 11 in Lompoc.

A Santa Maria Police Department patrol officer apparently spotted Morales at the Thornburg Street residence Friday morning, a department spokesman said.

About 12:30 p.m., Lompoc police officers, assisted by Santa Maria police and Santa Barbara County Sheriff's Office SWAT teams, attempted to serve the arrest warrant.

In all, about 30 officers and deputies converged on the home, with a Sheriff's Aero Unit helicopter providing support as the standoff continued, the spokesman said.

Another suspect, Francisco Gutierrez-Ortega, was arrested Sept. 19, 2019, after turning himself in to the Santa Maria Police Department.

Gutierrez-Ortega was subsequently charged with murder for the benefit of a criminal street gang and pleaded not guilty.


RANDY DE LA PEÑA, CONTRIBUTOR
Walter Morales, 26, is taken into custody Friday evening after a seven-hour standoff in Santa Maria.

Lompoc school district receives $50K grant to boost summer meal program

WILLIS JACOBSON
wjacobson@lompocrecord.com

Lompoc Unified School District has received a $50,000 grant to help it continue to provide food for children and families during the COVID-19 pandemic and beyond, the district revealed this week.

The grant was provided by Albertsons and the Vons Foundation through their Nourishing Neighbors Community Relief Initiative.

"LUSD Child Nutrition Services will use the funds for COVID-19 related items, such as increased meal costs, protective personal equipment for staff, meal ordering software, and additional unplanned incurred costs due to the emergency response," said Hannah Carroll, LUSD's director of Child Nutrition Services.

The Nourishing Neighbors Community Relief Initiative was established by Albertsons and Vons to help families impacted by the coronavirus pandemic. The funds are slated to be used to address the emergency in various ways. Those include:

- Keep food banks stocked so they can respond to increased demand.
- Support emergency meal distribution programs at schools.
- Support senior centers and other programs that provide meals and food to seniors.
- Help families access federal food programs.

LEN WOOD, STAFF
Janice Hay, lead child nutritionist at La Cañada Elementary School in Lompoc, hands out lunch to kids in this March 23 file photo. LUSD has announced that it has received a $50,000 grant to bolster its food services department.

"Many programs like ours are experiencing unprecedented demand as the pandemic takes an economic and emotional toll on people throughout our community," LUSD Superintendent Trevor McDonald said. "We are grateful that Albertsons and Vons Foundation stepped up to help us meet the need. Making sure our students continue to have access to quality food has been a top priority throughout the pandemic."

Chris Ettore, a manager at the Lompoc Albertsons store, said he was all for helping LUSD.

"It's an honor to support the work of LUSD because they're on the frontline of hunger relief with effective, efficient, caring outreach to people in need," Ettore said. "In the midst of the COVID-19 crisis, it's good to know that there are community partners like LUSD who won't allow hunger to become a second crisis."

LUSD is providing free "grab-n-go" meals for all children under the age of 18 each weekday from 11 a.m. to 12:30 p.m. through Aug. 7 at various locations. Those include Clarence Ruth, Fillmore and Hapgood elementary schools; La Honda STEAM Academy; Los Berros Visual and Performing Arts Academy; Lompoc High School; Maple High School; and at a mobile site near the intersection of North Avenue and North G Street.

To find a nearby site, text "FOOD" to 877-877.

For more information on LUSD, visit lusd.org.

Willis Jacobson covers the city of Lompoc. Follow him on Twitter @WJacobsonLR.

LIGHTS AND SIRENS IN LOMPOC

The following is taken from the Lompoc Police Department's calls-for-service log and the Santa Barbara County Sheriff's Office daily arrest log. Those appearing as "arrested" are only suspected of the crime indicated but are presumed innocent.

Thursday, July 2:

Lompoc Police received one call for fireworks.

Friday, July 10:

ARREST — At 8:43 a.m., Terrance Blake, 21, was arrested in the 1300 block of North V Street and booked into Santa Barbara County Jail on suspicion of first-degree robbery, assault with a firearm on a person, obstructing an officer, possession of a firearm while addicted to narcotics or by a convicted felon, unlawful possession of ammunition and warrants.

Saturday, July 11:

INCIDENT — At 1:26 a.m., Lompoc Police received a report of shots heard/fired in the 200 block of North E Street.

INCIDENT — At 7:48 p.m., Lompoc Police received a report of an attempted homicide in the 1000 block of West Olive Avenue.

INCIDENT — At 7:57 p.m., Lompoc Police received a report of a shooting at a dwelling in the 300 block of North N Street.

Sunday, July 12:

INCIDENT — At 2:24 a.m., Lompoc Police received a report of shots heard/fired in the 1300 block of North V Street.

INCIDENT — At 7:04 p.m., Lompoc Police received a report of an assault with a deadly weapon in the 1200 block of West Laurel Avenue.

INCIDENT — At 9:08 p.m., Lompoc Police received a report of shots heard/fired in the 200 block of North E Street.

Lompoc Police received one report of fireworks.

Monday, July 13:

INCIDENT — At 4:42 a.m., Lompoc Police received a report of an assault with a deadly weapon in the area of West College Avenue and North T Street.

INCIDENT — At 1:21 p.m., Lompoc Police received a report of a person brandishing a weapon in the 700 block of West Central Avenue.

ARREST — At 12:10 p.m., Issac Velez, 20, of Lompoc was arrested in an unspecified location in Goleta and booked into Santa Barbara County Jail on suspicion of assault with a firearm on a person and a gang enhancement.

Wednesday, July 15:

Lompoc Police received two reports of fireworks.

NEA CROSSWORD SOLUTION

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PUZZLE ON PAGE A5

PUBLIC NOTICE

ENVIRONMENTAL ASSESSMENT PREPARATION FOR HONDA CANYON CULVERTS REPAIR AND CORROSION PREVENTATION AT VANDENBERG AIR FORCE BASE, CALIFORNIA

The U.S. Air Force (AF) is preparing a Draft Environmental Assessment (EA) for Honda Canyon culverts repairs and corrosion prevention, the "Project". The Honda Canyon culverts are on Vandenberg Air Force Base in Santa Barbara County, California. Coast Road goes over the culverts and is critical for space launch missions. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and collapse is a concern. The AF proposed action is to install lining inside these metals pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot diameter High Density Polyurethane liners would be grouted in place inside the existing culverts. The proposed action would eliminate Coast Road collapse risk. To install the lining, the AF would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas. The AF proposes clearing and grubbing vegetation for a temporary access route along the beach to the culverts. Presently, no viable alternatives have been identified meeting the need for the proposed Project.

The Project is subject to Executive Order 11988, *Floodplain Management,* requirements and objectives because it would be in a floodplain. Within the project area, about 0.23 acre of waters of the United States would experience temporary effects. An additional 0.07 acre qualify as waters of the state, and a total of 0.30 acre of waters of the state would be temporarily affected. Effected areas include both wetlands and non-wetland jurisdictional waters containing non-tidal wetlands, stream channel, and riparian zone resources. The AF requests advance public comment to determine possible public concerns on potential project impacts. The AF also solicits public comments on potential project alternatives. The AF will analyze the proposed Project in a future Draft EA and the public will have the opportunity to comment on it.

The advance public comment period is 19 July 2020 through 18 August 2020. Please submit comments, or requests for more information to Ms. Tracy Curry-Bumpass, NEPA Project Manager, via email (tracy.curry-bumpass@us.af.mil) or by standard mail to: 30 CES/CEIEA, Attn: Tracy Curry-Bumpass, 1028 Iceland Avenue, Vandenberg Air Force Base, CA 93437.

OBITUARIES

David Neiggemann

David Michael Neiggmann, devoted father, avid motocross and animal lover, accomplished barbequerer of the Santa Maria tradition, gained his wings on Friday, June 19, 2020, at the age of 62.

David was born April 2, 1958 in Santa Maria, California to Henry and LaVerne (Seiberlich) Neiggemann. He grew up alongside his big sister Nansi, in a loving family that instilled in him avid appreciation for the great outdoors, skateboarding, motorcycles, and a deep sense of patriotism that endured throughout his life. He spent many afternoons at Spillway Park as a young man, and rode motocross professionally throughout much of his youth sponsored by Quitos Mexican Restaurant. He loved nothing more than riding his dirt bike fast and fearless like a free bird diving into the wind. He Graduated from Santa Maria High School with the class of 1976. It is important to note that despite the era during which he came of age, Dave was a connoisseur of quality rock n roll and never liked disco.

After High School David served our country in the Navy and graduated from boot camp in 1977. Upon completing utility training school in Port Hueneme, Ca. he was stationed in Diego Garcia, Puerto Rico as a Seabee. David married Meredith Pipestem in San Juan Bautista, Ca. in 1978. They raised one wonderful daughter together, Carolyn, the light of Daves life whom he was immensely proud of. David was a devoted father, he made sure every day that his daughter knew she was loved and that he supported her in all things. He really loved fatherhood and was well suited to it, managing to successfully navigate the careful balance between authority figure and friend. Because of that trait in particular Dave was well loved and treasured amongst the circle of friends Carolyn grew up with.

Dave really loved animals of all kinds and shared his roof with many throughout the years. Two standouts of the group were very cherished black and white tuxedo cats; most guests to his home will recall Taz or Shoug as ever present fixtures in the forefront of any visit to Daves living room. Never limiting his love of critters only to felines, he was adopted by a guinea hen named Betty whom he greatly enjoyed befriending. Dave also volunteered as a driver for the San Benito County SPCA wildlife center for a number of years, and counted feeding and watching birds among his other hobbies.

Dave often showed his love of friends and family through the making and sharing of good food. His tri-tip game was always on point and he made a mean pot of pinquito beans. If you needed a hot plate of chile relleno to comfort you after a tough day, Dave enjoyed cooking up some of Hollisters finest. He was always a gracious host and engaging conversationalist. He loved when friends dropped in to watch supercross or a game and was a lifelong fan of the LA Rams, and diehard Dodgers fan. He was a great listener and offered true friendship and the best of classic rock n roll in steady supply. Dave will always be remembered as a humble kind hearted person who would do everything he could to help those he loved.

David was preceded in death by his father, Hank, and his father in law Gustav Papa John Flittie. He is survived by his daughter and son in law Carolyn and Jed Granger of Hollister, Ca. His Mother LaVerne Baker, and Pops Frank Baker both of Springfield Missouri. His Sister Nansi Neiggemann Vos and her husband Thomas of Avon, Minnesota. Several nieces and nephews that Dave always adoringly cheered on and supported. His best friend and brother from another mother Wesley Major and his wife Lidia of San Bernardino, Ca.

His family asks that in lieu of sending flowers donations might instead be made to Daves favorite charitable causes: The Wounded Warrior Project, The San Benito County SPCA Wildlife Center.

Donald Gene Buck

Donald Gene Buck of Lompoc, CA. died 2 July 2020 at his residence. Mr. Buck worked at the Lockheed Martin Corporation as a Telecommunications Engineer for 38 years. He is survived by his wife of 40 years, Deborah Buck of Lompoc, CA., 3 sons ad their wives; Vincent & Stefanie Buck of Arroyo Grande, CA., Sy & Kim Buck of Henderson, NV., and Bobby & Lori Semones of Lompoc, CA. Mr. Buck is also survived by his 10 Grandchildren and 1 Great-Granddaughter. The Buck family will be holding a private memorial service, but will be holding a celebration of life with family and friends in January 2021. In lieu of flowers, please make a donation to Shadows Fund of Lompoc using the link below in his honor. https://app.donorview.com/qOzLY

Daniel Silva

Daniel Edward Silva, 83, of Nipomo Ca passed away July 3,2020. A true son of Santa Maria Valley, Dan was born to Edward Francis Silva and Alice Margret Silva, fourth generation of family from Oso Flaco. He attended grade school in Guadalupe, high school in Arroyo Grande and later Allen Hancock College.

During high school and ensuing years Dan worked as a Dairy Farmer, then as a Crane Operator with Lockheed Martin at Vandenburg Air Force for the next thirty nine years. After retiring, and never one to sit idle, Dan then started Brauns Trucking with his son Danny, allowing him to enjoy the open road while seeing the states for the next decade.

In his later years, Dan immersed himself in Ballroom Dancing, an activity that he enjoyed four to five days a week, meeting with friends at the Madonna Inn and other dance venues throughout the Central Coast. When not dancing he always enjoyed a good bike ride throughout the hills of Trilogy, 40 miles a week.

Dan is survived by his wife Socorro Silva, and three of his children, Rosemarie Castillo, Danny Silva, and Melissa Silva Harrington. He is also survived by his Grandchildren Nicholas, Kaitlin, Joy, Grace, Daniel, Levi and Liam.

Dan was preceded in death by his parents Edward and Alice, and daughter Roseanne Vokal.

Viewing will be held Tuesday July 21.

Services will be held Wednesday July 22, 2020 at the chapel of Dudley Hoffman Mortuary, followed by burial at Guadalupe Cemetery.

To leave a condolence for the family visit www.dudley-hoffmanmortuary.com

Dudley-Hoffman
Mortuary & Crematory
(805) 922-8463
www.dudleyhoffmanmortuary.com

For information on placing an obituary, please call (805) 739-2144

‘Black Lives’ mural outside Trump Tower defaced for 3rd time

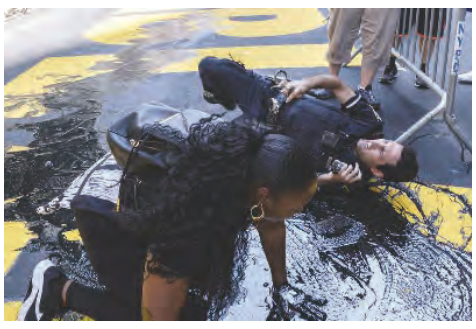
MICHAEL R. SISAK
Associated Press

NEW YORK — A “Black Lives Matter” mural painted on the street in front of President Donald Trump’s namesake New York City tower has quickly become a target for vandalism, defaced with bucketfuls of paint three times in less than a week.

In the latest incident, two women were arrested around 3 p.m. Saturday after police said they poured black paint on the block-long mural outside Trump Tower on Manhattan’s chic Fifth Avenue.

Bystander video showed police officers surrounding one of the women as she rubbed the paint on the mural’s bright yellow letters and screamed: “they don’t care about Black lives” and “refund the police.”

One of the officers slipped on the paint and tumbled to the ground, sustaining injuries to his head and arm, police said. He was listed in stable condition at Bellevue Hospital.



YUKI IWAMURA

An NYPD officer falls on Saturday during an attempt to detain a protester pouring black paint on the Black Lives Matter mural outside of Trump Tower on Fifth Avenue in the Manhattan borough of New York.

A police department spokesperson said the women’s names and information on possible charges against them weren’t immediately available.

The city’s largest police union, the Police Benevolent Association, tweeted: “Thankfully our brother will be OK, but this nonsense needs to stop. Our city is in crisis. Paint on the street helps no one.”

Lights

From A3

INCIDENT — At 11:50 p.m., Santa Maria Police received a report of shots heard in the 500 block of East Evergreen Avenue.

* Santa Maria Police received five reports of fireworks.

Saturday, July 11:

INCIDENT — At 3:08 a.m., Santa Maria Police received a report of an assault with a deadly weapon in the 1000 block of North Railroad Avenue.

INCIDENT — At 10:13 a.m., Santa Maria Police received a report of a person brandishing a weapon in the 1300 block of South Broadway.

ARREST — At 3:25 p.m., Erik Novoa, 37, was arrested in the 1300 block of South Broadway and booked into Santa Barbara County Jail on suspicion of exhibiting a deadly weapon, non-fiirearm; threatening a crime with intent to terrorize; battery; and assault with a deadly weapon, non-firearm.

* Santa Maria Police received 14 reports of fireworks.

Sunday, July 12:

INCIDENT — At 9:46 p.m., Santa Maria Police received a report of an attempted murder in the 200 block of North Western Avenue.

INCIDENT — At 1:50 p.m., Santa Maria Police received a report of a robbery in the 200 block of East Donovan Road.

INCIDENT — At 8:24 p.m., Santa Maria Police received a report of a person brandishing a weapon near the Clark Avenue southbound Highway 101 exit.

ARREST — At 8:59 p.m., Juan Carlos Arizaga Rosas, 37, was arrested in the 200 block of North Western Avenue and booked into Santa Barbara County Jail on suspicion of attempted murder and warrants.

* Santa Maria Police received four reports of fireworks.

Monday, July 13:

INCIDENT — At 9:24 p.m., Santa Maria Police received a report of shots heard in the 800 block of East Main Street.

INCIDENT — At 10:39 p.m., Santa Maria Police received a report of a robbery in the 400 block of West Alvin Avenue.

* Santa Maria Police received two reports of fireworks.

Tuesday, July 14:

INCIDENT — At 1:26 a.m., Santa Maria Police received a report of a robbery in the 300 block of East Enos Drive.

INCIDENT — At 10:05 p.m., Santa Maria Police received a report of a robbery in the 300 block of East Alvin Avenue.

* Santa Maria Police received three reports of fireworks.

Wednesday, July 15:

INCIDENT — At 3:21 a.m., Santa Maria Police received a report of shots heard in the 1700 block of North Broadway.

INCIDENT — At 1:01 p.m., Santa Maria Police received a report of an attempted murder in the 700 block of East Mill Street.

INCIDENT — At 1:20 p.m., Santa Maria Police received a report of an assault with a deadly weapon in the 1400 block of East Church Street.

ARREST — At 4:06 a.m., Fidel Pausano, 26, was arrested at Marian Regional Medical Center and booked into Santa Barbara County Jail on suspicion of driving under the influence of drugs or alcohol resulting in bodily injury and driving under the influence with a blood-alcohol content of 0.08% or greater.

Chickens

From A3

along Foxen Canyon Road. This vintage was picked early and bottled young to preserve its fresh and lively qualities. Carefully tended in the vineyard and nurtured in the winery, these grapes produce the subtle aromas of lemon peel, jasmine tea and pear. The wine is crisp with natural acidity developed in the grapes while growing in this cool climate. It is light and delicate with a bright finish. This refreshing Pinot Grigio will be a fine complement to a variety of light dishes, salads, fruit, and cheese as well as this one-pot Italian Chicken. Enjoy!

John David Finley is a freelance writer and author of the cookbook, Sacred Meals from our Family Table, which features Santa Barbara County wines. He can be reached at jdfinley53@outlook.com

PUBLIC NOTICE

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Santa Maria California
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I, **Danyelle Chavez,** in my capacity as **Advertising Account Executive** of the newspaper
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in **Santa Maria Times , Santa Maria, California** hereby certify that the ☒ ROP/❑ Inserts
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For **Vernadero Group, Inc., Public Notice- Enviro Prep.** IO#**3121** was inserted in the above
(Advertiser) (Ad Headline)

Newspaper on **July 19, 2020.**
(Run Date)

Danyelle J 7/29/20
Signature *Date*

Subscribed and sworn to before me in the County of _____ in the State of
(County)

_____, on this _____ day of _____, _____.
(State) (Date) (Month) (Year)

Notary Public Seal:

_____
Notary Public Signature

_____
Commission Expires

Teresa Ramirez 7-29-2020
Witness Date

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NEWSMEDIA
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Proof of Publication

I, **Danyelle Chavez,** in my capacity as **Advertising Account Executive** of the newspaper
(Name) (Title)

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(Newspaper Name) (City) (State)

For **Vernadero Group, Inc., Public Notice- Enviro Prep.** #**3121** was inserted in the above
(Advertiser) (Ad Headline)

Newspaper on **July 19, 2020.**
(Run Date)

Danyelle Chavez 7/29/20
Signature *Date*

Subscribed and sworn to before me in the County of _____ in the State of
(County)

_____, on this _____ day of _____, _____.
(State) (Date) (Month) (Year)

Notary Public Seal:

_____
Notary Public Signature

_____
Commission Expires

Teresa Ramirez 7-29-2020
Witness Date

APPENDIX B. State Historic Preservation Office Consultation

1

2 FORMAT PAGE

State of California • Natural Resources Agency

Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
STATE HISTORICAL RESOURCES COMMISSION

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

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René Vellanoweth, PhD

December 29, 2020

Reply in Reference to: USAF_2020_1006_001

Lt. Col. Charles G. Hansen
Commander, 30th Civil Engineer Squadron
1172 Iceland Avenue
Vandenberg AFB, CA 93437-6011

VIA ELECTRONIC MAIL

Re: Section 106 Consultation for Honda Culverts Repair, Vandenberg AFB

Dear Lt. Col. Hansen:

The United States Air Force (USAF) is initiating consultation with the State Historic Preservation Officer (SHPO) regarding its effort to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF are proposing to replace two culverts at Honda Creek in Vandenberg's South Base area. Installed between 1979 and 1983, the corrugated 12.5-foot diameter pipes no longer retain structural integrity.

Having conducted tribal consultation and performed a record search and pedestrian survey, the USAF determined the following historic properties are within the area of potential effects (APE):

- CA-SBA-212/CA-SBA-212H: a dual component resource in which the USAF determined the historic component is not eligible for National Register of Historic Places (NRHP) inclusion. To protect the site during construction activities, the USAF are proposing to install exclusionary fencing along both sides of the road all the way through the site in addition to a 200-foot buffer to the south.
- CA-SBA-669: a prehistoric site which will be protected during construction by exclusionary fencing along both sides of the access route as it runs through the site.

For the purpose of this undertaking only, the USAF are proposing to assume the site is eligible for NRHP inclusion.

- CA-SBA-1119: a prehistoric site in which the USAF are proposing to employ protective measures including inspection of the dam by a qualified archeologist dam area prior to construction, during dam emplacement, and during any modification to the dam when water is diverted from one culvert into the other.
- CA-SBA-1145 and CA-SBA-1145/H: a dual component resource the USAF determined eligible for NRHP inclusion under criteria D at the local level of significance.
- CA-SBA-539: a prehistoric site which will be protected during construction by temporary exclusionary fencing between the site boundary and the access.

The USAF's documentation notes that a qualified archaeologist will inspect the fencing and road improvements prior to project construction at all sites excepting CA-SBA-1145. It is the SHPO's understanding that the USAF has received no comments or objections through tribal consultation.

The USAF are requesting concurrence with its delineation of the project's area of potential effects (APE), its NRHP eligibility determinations and a finding of no adverse effect to historic properties. Upon review of the information provided, the SHPO offers the following comments:

1) Pursuant to 36 CFR Part 800.4(a)(1), the SHPO does not object to the USAF's APE definition.
2) CA-SBA-212 previously received SHPO concurrence (OHP reference # USAF850807A) that it is eligible for listing in the NRHP under criterion D for potential to address significant research questions on the pre-contact era. The SHPO concurs that CA-SBA-212/H does not contribute to the significance of the historic property.
3) Site CA-SBA-1145/H was formally determined eligible for NRHP inclusion under criterion D for its potential to address significant research questions on the pre-contact era. At this time, the SHPO does not concur that the historic archaeological component of CA-SBA-1145/H contributes to its significance as a historic property eligible for listing in the NRHP under Criterion D. It is recommended that the USAF submit the data recovery report mentioned in the supporting documentation for this undertaking in separate consultation for NRHP eligibility.
4) The SHPO does not object to the USAF's finding of no adverse effect to historic properties. Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the USAF may have future responsibilities for this undertaking under 36 CFR Part 800.

Notify Historian Ed Carroll at (916) 445-7006 or Ed.Carroll@parks.ca.gov if there are any questions or concerns.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

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APPENDIX C. Native American Tribal Consultation

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APPENDIX D. United States Fish and Wildlife Service Consultation

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Date sent to FWS: June 17 2020 813-17-0075

Project Title: Honda Creek Culvert Repair

Project Proponent: 30 CES/CEN (Simmons/Stringer)

CEIEA POC: Evans, 606-4198

Location: Coast Road, crossing Honda Creek (south VAFB)

Species impacted: Likely to adversely affect: California red-legged frog

Expected start date of project: Late Summer 2020 (design, including minimal ground disturbance for pre-construction wetlands analysis); summer 2021 construction

Project Description:

On South VAFB, Coast Road crossing over Honda Creek, planning and repair of two culverts are needed. The Air Force is trying to prevent another sink hole, endangering the mission-essential Coast road. Current plan is to design the project in late in 2020 and commence construction in 2021, with restoration (primarily to meet Army Corps of Engineers requirements) taking place 2022-2026. All construction will occur in the dry season (excluding restoration, some plantings etc. will occur early in wet season, to encourage enhanced survival).

This project was informally presented to the Service in late 2019 to determine whether it would be adequately authorized under our existing PBO.

This site has two large culverts, running parallel to each other, under the large berm that was built about 1980 for the construction of Coast Rd. (i.e. the area has a berm, not a bridge; the railroad trestle just west was built in the late 1800's).

Heavy Equipment will be used for the project. We do NOT need to remove the existing culverts, which will be "re-lined," and rip-rap installed, caulking and shotcrete. Work will occur on both the upstream side of the culverts, likely limited to "Bobcat" sized equipment and the downstream side (with heavier equipment). They will not need to significantly re-route water, as they'll be able to keep one culvert functioning while they repair the parallel one.

The actual project will include improving the access road to the mouth of Honda Creek. CRLF are present in the project area. Tidewater goby are historically present, but in the most recent surveys, seem to have been extirpated (which is NOT unusual for TWG; they frequently recolonize via the ocean from other waterbodies, TWG are present by the hundreds of thousands in the Santa Ynez River). Also, "full disclosure," there is an "undescribed" species of slender salamander (Genus: *Batrachoseps*; proposed *B. wakei,* in press, expected publication Fall 2020, submitted to *Copeia* by Sweet and Jockusch) present nearby, not a listed species, but there is the possibility for a petition at some point in the next 3-5 years.

We will require that a biological monitor (likely a subcontractor) be on site at all necessary times. We've planned staging areas to be quite far away from the flowing Honda Creek channel (which has a very low flow in the dry season).

30 CES/CEIEA Analysis:

Several site visits were performed by 30 CES/CEI, starting in 2017, as plans for the project were initially developed and re-prioritized. Habitat types in the primary project area are predominantly Central Coastal Arroyo Willow Riparian Forest and Coastal Scrub; access routes and staging areas are predominantly covered by non-native iceplant (*Carpobrotus spp.).*

Programmatic Biological Opinion Reference:

Section 2.2, Page 22 (Stormwater lines); specifically the end of the third paragraph discusses this kind of action. There's also a "road maintenance" component to this project (Section 2.1, page 16), as the main goal of this project is to protect Coast Road; we had a sinkhole form in Coast Road due to a failed culvert in 2017; we repaired that following extensive coordination with your office with a final report sent to your office dated 4 December 2018).

Analysis of Effects:

Based on proximity to California red-legged frog habitat, the project is “likely to adversely affect” California red-legged frog. The nearest known location for the frog is within the project area (Figure 4).

Maximum expected disturbance area: A total area of about 1.33 acres (57,800 sq. feet) will be disturbed (this figure does not include the primary staging area, an existing, paved parking lot (32,000 sq. feet or 0.75 acres). Of the 1.33 acres, more than 90% of the area is previously disturbed (existing road to be improved) or largely unvegetated beach above the maximum high tide line).

Impact if project not completed: The project is needed to retain safe road access to mission essential facilities on South VAFB, including Space Launch Complexes 6 and 8. Erosion and safety hazards would continue without project improvements.

Minimization Measures which will NOT be implemented for this project:

PBO Section 7.1 (Basewide): None

PBO Section 7.2 (Species-specific): None

Summary:

CEIEA has determined that the proposed project should be considered and authorized for action because:

a.) the project fits within the scope of the actions described in the PBO,
b.) the effects analyzed are identical or similar to those that were analyzed in the PBO,
c.) sensitive time periods for listed species will be avoided to the extent practicable, and
d.) all pertinent minimization measures will be implemented.

We request concurrence from FWS within 30 days of the date of this document. This project will also be discussed and/or listed within our annual report.

Site Map or Imagery:

Figure 1. Project site (yellow rectangle, enlarged for visibility)

Figure 2. Project Components.

Figure 3: Project site with nearest known California red-legged frog observations (yellow dots)

From:	Chang, Lena
To:	EVANS, RHYS M CIV USSF SPOC 30 CES/CEIEA; Strotman, Jennifer L
Cc:	YORK, DARRYL L GS-14 USSF SPOC 30 CES/CEIE; CURRY-BUMPASS, TRACY L GS-12 USSF SPOC 30 CES/CEIEA; Diel, Christopher
Subject:	[Non-DoD Source] Re: [EXTERNAL] Honda Culvert pre-notification
Date:	Wednesday, September 16, 2020 5:27:39 PM

2020-F-0492

Hi Rhys,

We are responding to your notification sent via email on June 17, 2020, placed on hold on June 30, and resubmitted with additional information on August 19, 2020, regarding the repair of two parallel culverts on Coast Road, near Honda Ridge Road along Honda Creek on south Vandenberg Air Force Base. The proposed project would include re-lining and installing rip-rap, caulking, and shotcrete to the existing culverts. The proposed work would occur on both the upstream side of the culverts, (likely limited to Bobcat-sized equipment) and the downstream side (with heavier equipment). Water would be re-routed, and a coffer dam would be required. One culvert would remain functioning while the parallel culvert is under repair. The proposed project would also include improving the access road to the mouth of Honda Creek. The design of the proposed project, as well as minimal ground disturbance for pre-construction wetlands analysis, would occur in late summer 2020. The rest of the project construction would occur in summer 2021.

Under the Terms and Conditions of the Programmatic Biological Opinion, Vandenberg Air Force Base, Santa Barbara County, California (8-8-13-F-49R), you are required to notify us of project activities that may adversely affect any federally listed species analyzed within this programmatic biological opinion (PBO). You have determined that this project is likely to adversely affect the federally threatened California red-legged frog (*Rana draytonii*). Projects of this nature were described in the PBO under section 2.1 Road Maintenance, pages 16-17, and section 2.2 Utility Installation, Maintenance, and Removal, Storm water lines, pages 21-22. The effects of these project activities to California red-legged frog were discussed on pages 116-117.

Your notification states that the project is within occupied habitat of California red-legged frog with a maximum expected disturbance of 1.33 acres with more than 90% of the project area being previously disturbed, including an existing road and largely unvegetated beach above the maximum high tide line. Planned staging areas will be away from the flowing Honda Creek channel, which has a very low flow in the dry season, and a biological monitor will be on site at all necessary times.

Per your notification, all other minimization and avoidance measures outlined in sections 7.1 and 7.2 of the PBO will be implemented. For any project activities conducted within California

red-legged frog dispersal distance (0.03 mile in the dry season, 0.13 mile in the breeding season), VAFB will implement California red-legged frog specific avoidance and minimization measures outlined in the reinitiated PBO (2018-F-0664) dated November 20, 2018.

In conclusion, provided the Air Force also implements all appropriate terms and conditions, we agree that the project activities included in your notification can go forward under the PBO without further consultation. If you have any questions regarding our response to your pre-project notification, please contact Jennifer Strotman at (805) 677-3343, or by electronic mail at jennifer_strotman@fws.gov.

Sincerely,
Lena Chang

Lena ChangSenior Fish & Wildlife Biologist
U.S. Fish & Wildlife Service | Ventura Fish & Wildlife Office
2493 Portola Road, Suite B | Ventura, California 93003
Direct: 805.677.3305 | lena_chang@fws.gov

Facebook • Ventura Fish & Wildlife Office • U.S. Fish & Wildlife Service

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From: EVANS, RHYS M CIV USSF SPOC 30 CES/CEIEA
Sent: Wednesday, June 17, 2020 3:18 PM
To: Chang, Lena; Strotman, Jennifer L
Cc: YORK, DARRYL L GS-13 USSF SPOC 30 CES/CEIEA; CURRY-BUMPASS, TRACY L GS-12 USSF SPOC 30 CES/CEIEA
Subject: [EXTERNAL] Honda Culvert pre-notification

Lena / Jenn: Please process attached “pre-notification” for a road and drainage maintenance project on South VAFB. You should recognize much of it; earlier this year, I sent a bare-bones version of the same project asking if your office was comfortable with this project being undertaken through our PBO (note: you responded “yes”…).

As always, if you have questions or concerns, please don’t hesitate to ask. I know we’ve sent you a LOT of fun things to look over in the last few weeks, but the good news is (again) that you’ve at least seen most of this one before!!

THANK YOU, rme

Rhys M. Evans
Biological Scientist
Vandenberg Air Force Base (30 CES/CEIEA)
Rhys.evans@us.af.mil
(805) 606-4198 (DSN 276-4198)

Sent to FWS: 17 March 2021 813-17-0075

Prior version sent to FWS: June 17 2020, approved 17 September 2020

Project Title: Honda Creek Culvert Repair

Project Proponent: 30 CES/CEN (Simmons/Stringer)

CEIEA POC: Evans, 606-4198

Location: Coast Road, crossing Honda Creek (south VAFB)

Species impacted: Likely to adversely affect: California red-legged frog: Not likely to adversely affect: Tidewater goby

Expected start date of project: Late Summer 2020 (design, including minimal ground disturbance for pre-construction wetlands analysis); summer 2021 construction

Project Description:

On South VAFB, Coast Road crossing over Honda Creek, planning and repair of two culverts are needed. The Air Force is trying to prevent another sink hole, endangering the mission-essential Coast road. Current plan is to design the project in late in 2020 and commence construction in 2021, with restoration (primarily to meet Army Corps of Engineers requirements) taking place 2022-2026. All construction will occur in the dry season (excluding restoration, some plantings etc. will occur early in wet season, to encourage enhanced survival).

This project was informally presented to the Service in late 2019 to determine whether it would be adequately authorized under our existing PBO.

This site has two large culverts, running parallel to each other, under the large berm that was built about 1980 for the construction of Coast Rd. (i.e. the area has a berm, not a bridge; the railroad trestle just west was built in the late 1800's).

Heavy Equipment will be used for the project. We do NOT need to remove the existing culverts, which will be "re-lined," and rip-rap installed, caulking and shotcrete. Work will occur on both the upstream side of the culverts, likely limited to "Bobcat" sized equipment and the downstream side (with heavier equipment). They will not need to significantly re-route water, as they'll be able to keep one culvert functioning while they repair the parallel one.

The actual project will include improving the access road to the mouth of Honda Creek. CRLF are present in the project area. Tidewater goby are historically present, but in the most recent surveys, seem to have been extirpated (which is NOT unusual for TWG; they frequently recolonize via the ocean from other waterbodies, TWG are present by the hundreds of thousands in the Santa Ynez River). Also, "full disclosure," there is an "undescribed" species of slender salamander (Genus: *Batrachoseps*; proposed *B. wakei,* in press, expected publication summer 2021, submitted to *Icthyology and Herpetology* by Sweet and Jockusch) present nearby, not a listed species, but there is the possibility for a petition at some point in the next 3-5 years.

We will require that a biological monitor (likely a subcontractor) be on site at all necessary times. We've planned staging areas to be quite far away from the flowing Honda Creek channel (which has a very low flow in the dry season).

30 CES/CEIEA Analysis:

Several site visits were performed by 30 CES/CEI, starting in 2017, as plans for the project were initially developed and re-prioritized. Habitat types in the primary project area are predominantly Central Coastal Arroyo Willow Riparian Forest and Coastal Scrub; access routes and staging areas are predominantly covered by non-native iceplant (*Carpobrotus spp.).*

Programmatic Biological Opinion Reference:

Section 2.2, Page 22 (Stormwater lines); specifically the end of the third paragraph discusses this kind of action. There's also a "road maintenance" component to this project (Section 2.1, page 16), as the main goal of this project is to protect Coast Road; we had a sinkhole form in Coast Road due to a failed culvert in 2017; we repaired that following extensive coordination with your office with a final report sent to your office dated 4 December 2018).

Analysis of Effects:

Based on proximity to California red-legged frog habitat, the project is “likely to adversely affect” California red-legged frog. The nearest known location for the frog is within the project area (Figure 4).

This project is highly unlikely to affect Tidewater goby, as we believe Honda Creek currently does not host this species, however it might again in the future.

Maximum expected disturbance area: A total area of about 1.33 acres (57,800 sq. feet) will be disturbed (this figure does not include the primary staging area, an existing, paved parking lot (32,000 sq. feet or 0.75 acres). Of the 1.33 acres, more than 90% of the area is previously disturbed (existing road to be improved) or largely unvegetated beach above the maximum high tide line).

Impact if project not completed: The project is needed to retain safe road access to mission essential facilities on South VAFB, including Space Launch Complexes 6 and 8. Erosion and safety hazards would continue without project improvements.

Minimization Measures which will NOT be implemented for this project:

PBO Section 7.1 (Basewide): None

PBO Section 7.2 (Species-specific): None

Summary:

CEIEA has determined that the proposed project should be considered and authorized for action because:

a.) the project fits within the scope of the actions described in the PBO,
b.) the effects analyzed are identical or similar to those that were analyzed in the PBO,
c.) sensitive time periods for listed species will be avoided to the extent practicable, and
d.) all pertinent minimization measures will be implemented.

We request concurrence from FWS within 30 days of the date of this document. This project will also be discussed and/or listed within our annual report.

Site Map or Imagery:

Figure 1. Project site (yellow rectangle, enlarged for visibility)

Figure 2. Project Components.

Figure 3: Project site with nearest known California red-legged frog observations (yellow dots)

From: Diel, Christopher <christopher_diel@fws.gov>
Sent: Thursday, March 18, 2021 9:51 AM
To: EVANS, RHYS M CIV USSF SPOC 30 CES/CEIEA <rhys.evans@spaceforce.mil>
Cc: Termondt, Sarah E <sarah_termondt@fws.gov>
Subject: [Non-DoD Source] Honda Creek Culvert Repair

Hi Rhys,

We are responding to your revised notification sent via email on March 17, 2021, following our September 16, 2020 response, regarding the repair of two parallel culverts on Coast Road, near Honda Ridge Road along Honda Creek on south Vandenberg Air Force Base. The proposed project would include re-lining and installing rip-rap, caulking, and shotcrete to the existing culverts. The proposed work would occur on both the upstream side of the culverts, (likely limited to Bobcat-sized equipment) and the downstream side (with heavier equipment). Water would be re-routed, and a coffer dam would be required. One culvert would remain functioning while the parallel culvert is under repair. The proposed project would also include improving the access road to the mouth of Honda Creek. The design of the proposed project, as well as minimal ground disturbance for pre- construction wetlands analysis , would occur in late summer 2020. The rest of the project construction would occur in summer 2021.

Under the Terms and Conditions of the Programmatic Biological Opinion, Vandenberg Air Force Base, Santa Barbara County, California (8-8-13-F-49R), you are required to notify us of project activities that may adversely affect any federally listed species analyzed within this programmatic biological opinion (PBO). You have determined that this project is likely to adversely affect the federally threatened California red-legged frog (*Rana draytonii*) and the federally endangered tidewater goby (*Eucyclogobius newberryi*). Projects of this nature were described in the PBO under section 2.1 Road Maintenance, pages 16-17, and section 2.2 Utility Installation, Maintenance, and Removal, Storm water lines, pages 21-22. The effects of these project activities to California red-legged frog and tidewater goby were discussed on pages 116-117 and 120-121 respectively.

Your notification states that the project is within occupied habitat of California red-legged frog and unoccupied (historic) tidewater goby habitat with a maximum expected disturbance of 1.33 acres with more than 90% of the project area being previously disturbed, including an existing road and largely unvegetated beach above the maximum high tide line. Planned staging areas will be away from the flowing Honda Creek channel, which has a very low flow in the dry season, and a biological monitor will be on site at all necessary times.

Per your notification, all other minimization and avoidance measures outlined in sections 7.1 and 7.2 of the PBO will be implemented. For any project activities conducted within California red-legged frog dispersal distance (0.03 mile in the dry season, 0.13 mile in the breeding season), VAFB will implement California red-legged frog specific avoidance and minimization measures outlined in the reinitiated PBO (2018-F-0664) dated November 20, 2018. Because tidewater gobies are not known to currently occupy the project area, measures described in section 7.2 will be implemented as deemed necessary to avoid and minimize any potential effects to the species at the discretion of a qualified biologist.

In conclusion, provided the Air Force also implements all appropriate terms and conditions, we agree that the project activities included in your notification can go forward under the PBO without further consultation. If you have any questions regarding our response to your pre-project notification, please contact Sarah Termondt at (805) 677-3343, or by electronic mail at sarah_termondt@fws.gov.

Christopher J. Diel
Assistant Field Supervisor
U.S. Fish & Wildlife Service, Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003
805/677-3366
(he, his, him)

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APPENDIX E. Species Observed during Field Surveys

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Table E-1. Plant species observed during field surveys at the Proposed Action Area

Family	Scientific Name	Common Name	Wetland Indicator Status	General Status
Aizoaceae	*Carpobrotus chilensis*	ice plant	Facultative Upland	Non-native
Aizoaceae	*Mesembryanthemum crystallinum*	crystalline ice plant	Facultative Upland	Non-native
Aizoaceae	*Tetragonia tetragonioides*	new zealand spinach	Upland	Non-native
Anacardiaceae	*Rhus integrifolia*	lemonade berry	Upland	Native
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	Facultative Upland	Native
Apiaceae	*Apium graveolens†*	celery	Facultative Wetland	Non-native
Apiaceae	*Conium maculatum*	poison hemlock	Facultative Wetland	Non-native
Apiaceae	*Foeniculum vulgare*	fennel	Upland	Non-native
Asteraceae	*Ambrosia chamissonis*	beach bursage	Upland	Native
Asteraceae	*Artemisia californica*	California sagebrush	Upland	Native
Asteraceae	*Artemisia douglasiana*	mugwort	Facultative	Native
Asteraceae	*Baccharis glutinosa*	marsh baccharis	Facultative Wetland	Native
Asteraceae	*Baccharis pilularis*	coyote brush	Upland	Native
Asteraceae	*Centaurea melitensis*	tocalote	Upland	Non-native
Asteraceae	*Corethrogyne filaginifolia*	common sand aster	Upland	Native
Asteraceae	*Cotula coronopifolia*	brass buttons	Obligate	Non-native
Asteraceae	*Deinandra increscens ssp. Increscens*	grassland tarweed	Upland	Native
Asteraceae	*Ericameria ericoides*	mock heather	Upland	Native
Asteraceae	*Eriophyllum staechadifolium*	coastal golden yarrow	Upland	Native
Asteraceae	*Helminthotheca echioides††*	bristly ox tongue	Facultative	Non-native
Asteraceae	*Isocoma menziesii*	coastal goldenbush	Upland	Native
Asteraceae	*Jaumea carnosa*	fleshy jaumea	Obligate	Native
Asteraceae	*Leptosyne gigantea*	giant coreopsis	Upland	Native
Asteraceae	*Pseudognaphalium californicum*	california everlasting	Upland	Native
Asteraceae	*Pseudognaphalium luteoalbum*	cudweed	Facultative	Non-native
Asteraceae	*Sonchus asper*	prickly sow thistle	Facultative	Non-native
Asteraceae	*Sonchus oleraceus*	common sow thistle	Upland	Non-native
Brassicaceae	*Brassica nigra*	black mustard	Upland	Non-native
Brassicaceae	*Cakile maritima*	sea rocket	Facultative	Non-native
Brassicaceae	*Raphanus sativus*	wild raddish	Upland	Non-native
Caprifoliaceae	*Sambucus nigra ssp. caerulea*	elderberry	Facultative Upland	Native
Caryophyllaceae	*Spergularia macrotheca*	sand spurry	Facultative	Native

Family	Scientific Name	Common Name	Wetland Indicator Status	General Status
Chenopodiaceae	*Atriplex californica*	coastal saltbush	Upland	Native
Chenopodiaceae	*Atriplex leucophylla*	beach saltbush	Facultative	Native
Chenopodiaceae	*Atriplex semibaccata*	australian saltbush	Facultative	Non-native
Chenopodiaceae	*Chenopodium californicum*	california goosefoot	Upland	Native
Crassulaceae	*Dudleya caespitosa*	coast dudleya	Upland	Native
Cyperaceae	*Bolboschoenus maritimus*	alkali bulrush	Obligate Wetland	Native
Cyperaceae	*Juncus ensifolius*	sword leaved rush	Facultative Wetland	Native
Cyperaceae	*Schoenoplectus acutus*	roundstem tule	Obligate Wetland	Native
Cyperaceae	*Schoenoplectus americanus*	american three square	Obligate Wetland	Native
Equisetaceae	*Equisetum hyemale*	common scouring rush	Facultative Wetland	Native
Fabaceae	*Acacia longifolia*	long-leafed acacia	Upland	Non-native
Fabaceae	*Acmispon glaber*	deerweed	Upland	Native
Fabaceae	*Astragalus nuttallii*	locoweed	Upland	Native
Fabaceae	*Hoita orbicularis*	hoita	Obligate Wetland	Native
Fabaceae	*Medicago polymorpha*	bur clover	Facultative Upland	Non-native
Fabaceae	*Melilotus indicus*	yellow sweet clover	Facultative Upland	Non-native
Frankeniaceae	*Frankenia salina*	alkali heath	Facultative Wetland	Native
Grossulariaceae	*Ribes malvaceum*	chaparral current	Upland	Native
Myrsinaceae	*Lysimachia arvensis*	scarlet pimpernel	Facultative	Non-native
Onagraceae	*Camissoniopsis cheiranthifolia*	beach evening primrose	Upland	Native
Oxalidaceae	*Oxalis pes-caprae*	bermuda buttercup	Upland	Non-native
Phrymaceae	*Mimulus guttatus*	common monkeyflower	Obligate Wetland	Native
Plantaginaceae	*Plantago coronopus*	cutleaf plantain	Facultative	Non-native
Plantaginaceae	*Veronica anagallis-aquatica*	water speedwell	Obligate Wetland	Non-native
Poaceae	*Bromus diandrus*	ripgut brome	Upland	Non-native
Poaceae	*Cortaderia jubata*	jubata grass	Facultative Upland	Non-native
Poaceae	*Distichlis spicata*	salt grass	Facultative	Native
Poaceae	*Ehrharta calycina*	veldt grass	Upland	Non-native
Poaceae	*Hordeum marinum*	seaside barley	Facultative	Non-native
Poaceae	*Polypogon monspeliensis*	rabbitfoot grass	Facultative Wetland	Non-native
Polygonaceae	*Eriogonum parvifolium*	seacliff buckwheat	Upland	Native
Polygonaceae	*Rumex crispus*	curly dock	Facultative	Non-native
Ranunculaceae	*Clematis ligusticifolia*	virgin's bower	Facultative	Native
Ranunculaceae	*Thalictrum fendleri*	Fendler's meadow-rue	Facultative	Native
Rosaceae	*Potentilla anserina*	coastal silverleaf	Obligate Wetland	Native

Family	Scientific Name	Common Name	Wetland Indicator Status	General Status
Rosaceae	*Rubus ursinus*	blackberry	Facultative	Native
Salicaceae	*Populus trichocarpa*	black cottonwood	Upland	Native
Salicaceae	*Salix lasiolepis*	arroyo willow	Facultative Wetland	Native
Scrophulariaceae	*Scrophularia californica*	california figwort	Facultative	Native
Tamaricaceae	*Tamarix ramosissima*	tamarisk	Facultative	Non-native
Typhaceae	*Typha latifolia*	cattail	Obligate Wetland	Native
Urticaceae	*Urtica dioica ssp. holosericea*	stinging nettle	Facultative	Native

†Considered Facultative Wetland per USFWS 1997 “National List of Vascular Plant Species that Occur in Wetlands”
††Considered Facultative per USFWS 1997 “National List of Vascular Plant Species that Occur in Wetlands”

Table E-2. Fish, amphibian, and reptile species recorded and potentially occurring in the Proposed Action Area

Species name	Common Name	Status†	Occurrence
Fish			
Eucyclogobius newberryi	Tidewater goby	Native	Historic
Amphibians			
Aneides lugubris	Arboreal salamander	Native	Documented
Batrachoseps nigriventris	Black-bellied slender salamander	Native	Documented
Batrachoseps "undescribed"	Slender salamander	Native	Documented
Ensatina eschscholtzii	Ensatina	Native	Expected
Pseudacris hypochondriaca	Baja California chorus frog	Native	Documented
Rana draytonii	California red-legged frog	FT, SSC	Documented
Reptiles			
Aniella puchra	Northern legless lizard	SSC	Expected
Crotalus oreganus	Pacific rattlesnake	Native	Expected
Elgaria multicarinata	Southern alligator lizard	Native	Expected
Emys marmorata	Western pond turtle	Native	Documented
Lampropeltis getula	California kingsnake	Native	Expected
Masticophis lateralis	California whipsnake	Native	Expected
Plestiodon skiltonianus	Western skink	Native	Expected
Pituophis catenifer	Gopher snake	Native	Expected
Sceloporus occidentalis	Western fence lizard	Native	Documented
Thamnophis elegans	Western terrestrial gartersnake	Native	Expected
Thamnophis hammondii	Two-striped gartersnake	Native	Documented
Thamnophis sirtalis	Common gartersnake	Native	Expected
†Status: FT = Federally Threatened; SSC = Species of Special Concern			

Table E-3. Bird species recorded and potentially occurring in the Proposed Action Area

Species name	Common name	Status†	Occurrence
Birds			
Accipiter cooperii	Cooper's Hawk	Native	Breeding
Aeronautes saxatalis	White-throated Swift	Native	Foraging
Agelaius phoeniceus	Red-winged Blackbird	Native	Breeding
Aphelocoma californica	Western Scrub-Jay	Native	Breeding
Archilochus alexandri	Black-chinned Hummingbird	Native	Breeding
Baeolophus inornatus	Oak Titmouse	Native	Breeding
Bombycilla cedrorum	Cedar Waxwing	Native	Wintering
Bubo virginianus	Great Horned Owl	Native	Breeding
Buteo jamaicensis	Red-tailed Hawk	Native	Breeding
Callipepla californica	California Quail	Native	Breeding
Calypte anna	Anna's Hummingbird	Native	Breeding
Calypte costae	Costa's Hummingbird	Native	Breeding
Carduelis lawrencei	Lawrence's Goldfinch	BCC	Breeding
Carpodacus mexicanus	House Finch	Native	Breeding
Carpodacus purpureus	Purple Finch	Native	Breeding
Cathartes aura	Turkey Vulture	Native	Foraging
Catharus ustulatus	Swainson's Thrush	Native	Breeding
Catherpes mexicanus	Canyon Wren	Native	Breeding
Chamaea fasciata	Wrentit	Native	Breeding
Charadrius nivosus	Western snowy plover	FT, BCC, SSC	Foraging
Charadrius vociferus	Killdeer	Native	Breeding
Colaptes auratus	Northern Flicker	Native	Breeding
Contopus cooperi	Olive-sided Flycatcher	Native	Breeding
Contopus sordidulus	Western Wood-Pewee	Native	Breeding
Corvus brachyrhynchos	American Crow	Native	Breeding
Dendroica coronata	Yellow-rumped Warbler	Native	Wintering
Dendroica petechia	Yellow Warbler	Native	Breeding
Dendroica townsendi	Townsend's Warbler	Native	Wintering
Empidonax difficilis	Pacific-slope Flycatcher	Native	Breeding
Eremophila alpestris	Horned Lark	Native	Foraging
Euphagus cyanocephalus	Brewer's Blackbird	Native	Breeding

Species name	Common name	Status†	Occurrence
Falco peregrinus anatum	Peregrine Falcon	BCC, FP	Foraging
Falco sparverius	American Kestrel	Native	Breeding
Geococcyx californianus	Greater Roadrunner	Native	Foraging
Geothlypis trichas	Common Yellowthroat	Native	Breeding
Gymnogyps californianus	California Condor	FE, SE	Rare Fly Over
Haematopus bachmani	Black Oystercatcher	BCC	Fly Over
Haliaeetus leucocephalus	Bald Eagle	BGEPA, FP	Fly Over
Icteria virens	Yellow-breasted Chat	SSC	Breeding
Icterus bullockii	Bullock's Oriole	Native	Breeding
Icterus cucullatus	Hooded Oriole	Native	Breeding
Junco hyemalis	Dark-eyed Junco	Native	Breeding
Lanius ludovicianus	Loggerhead Shrike	BCC	Breeding
Larus californicus	California Gull	Native	Wintering
Larus canus	Mew Gull	Native	Wintering
Larus delawarensis	Ring-billed Gull	Native	Wintering
Larus glaucescens	Glaucous-winged Gull	Native	Wintering
Larus heermanni	Heermann's Gull	Native	Wintering
Larus occidentalis	Western Gull	Native	Foraging
Limnodromus griseus	Short-billed Dowitcher	BCC	Wintering
Limosa fedoa	Marbled Godwit	BCC	Wintering
Melospiza melodia	Song Sparrow	Native	Breeding
Molothrus ater	Brown-headed Cowbird	Native	Breeding
Morus bassanus	Northern Gannet	Native	Fly Over
Myiarchus cinerascens	Ash-throated Flycatcher	Native	Breeding
Numenius americanus	Long-billed Curlew	BCC	Wintering
Numenius phaeopus	Whimbrel	BCC	Foraging
Passerina amoena	Lazuli Bunting	Native	Breeding
Passerina caerulea	Blue Grosbeak	Native	Breeding
Patagioenas fasciata	Band-tailed Pigeon	Native	Foraging
Phainopepla nitens	Phainopepla	Native	Breeding
Phalaenoptilus nuttallii	Common Poorwill	Native	Breeding
Pheucticus melanocephalus	Black-headed Grosbeak	Native	Breeding
Picoides nuttallii	Nuttall's Woodpecker	Native	Breeding

Species name	Common name	Status†	Occurrence
Picoides pubescens	Downy Woodpecker	Native	Breeding
Picoides villosus	Hairy Woodpecker	Native	Breeding
Pipilo crissalis	California Towhee	Native	Breeding
Pipilo maculatus	Spotted Towhee	Native	Breeding
Piranga ludoviciana	Western Tanager	Native	Breeding
Poecile rufescens	Chestnut-backed Chickadee	Native	Breeding
Polioptila caerulea	Blue-gray Gnatcatcher	Native	Breeding
Psaltriparus minimus	Bushtit	Native	Breeding
Rynchops niger	Black Skimmer	BCC	Fly Over
Sayornis nigricans	Black Phoebe	Native	Breeding
Selasphorus sasin	Allen's Hummingbird	BCC	Breeding
Setophaga petechia	Yellow warbler	SSC	Breeding
Sialia mexicana	Western Bluebird	Native	Breeding
Spinus lawrencei	Lawrence's Goldfinch	Native	Breeding
Spinus psaltria	Lesser Goldfinch	Native	Breeding
Spinus tristis	American Goldfinch	Native	Breeding
Stelgidopteryx serripennis	Northern Rough-winged Swallow	Native	Fly Over
Streptopelia decaocto	Eurasian Collared-Dove	Non-native	Breeding
Sturnella neglecta	Western Meadowlark	Native	Breeding
Sturnus vulgaris	European Starling	Non-native	Breeding
Tachycineta thalassina	Violet-green Swallow	Native	Breeding
Thryomanes bewickii	Bewick's Wren	Native	Breeding
Toxostoma redivivum	California Thrasher	Native	Breeding
Tringa semipalmata	Willet	BCC	Wintering
Troglodytes aedon	House Wren	Native	Breeding
Turdus migratorius	American Robin	Native	Breeding
Tyrannus verticalis	Western Kingbird	Native	Breeding
Tyrannus vociferans	Cassin's Kingbird	Native	Breeding
Vermivora celata	Orange-crowned Warbler	Native	Breeding
Vireo gilvus	Warbling Vireo	Native	Breeding
Vireo huttoni	Hutton's Vireo	Native	Breeding
Wilsonia pusilla	Wilson's Warbler	Native	Breeding
Zenaida macroura	Mourning Dove	Native	Breeding

Species name	Common name	Status†	Occurrence
Zonotrichia leucophrys	White-crowned Sparrow	Native	Breeding

†Status: Notes: BGEPA = Bald and Golden Eagle Protection Act; FE = Federal Endangered Species; FT = Federal Threatened Species; SE = State Endangered Species; CSC = California Species of Special Concern; SCE = State Candidate Endangered; SE = State Endangered Species; SSC = State Candidate Species; BCC = Federal Bird of Conservation Concern

Table E-4. Mammal species recorded and potentially occurring in the Proposed Action Area

Species name	Common name	Status†	Occurrence
Mammals			
Antrozous pallidus	Pallid bat	SSC	Documented
Canis latrans	Coyote	Native	Documented
Corynorhinus townsendii	Townsend's big-eared bat	SSC	Documented
Eptesicus fuscus	Big brown bat	Native	Documented
Eumops perotis	Greater bonneted bat	Native	Documented
Lasionycteris noctivagans	silver-haired bat	Native	Documented
Lasiurus blossevillii	western red bat	Native	Documented
Lasiurus cinereus	Hoary bat	Native	Documented
Microtus californicus	California vole	Native	Expected
Mirounga angustirostris	Northern elephant seal	Native	Rare
Myotis californicus	California myotis	Native	Documented
Myotis yumanensis	Yuma myotis	Native	Documented
Neotoma fuscipes	Dusky-footed woodrat	Native	Expected
Odocoileus hemionus	Mule deer	Native	Documented
Parastrellus hesperus	Canyon bat	Native	Documented
Peromyscus californicus	California mouse	Native	Expected
Peromyscus maniculatus	Deer mouse	Native	Expected
Phoca vitulina	Harbor seal	Native	Rare
Sorex ornatus	Ornate shrew	Native	Expected
Sorex trowbridgii	Trowbridge's shrew	Native	Expected
Spermophilus beecheyi	California ground squirrel	Native	Documented
Sylvilagus bachmani	Brush rabbit	Native	Documented
Tadarida brasiliensis	Mexican free-tailed bat	Native	Documented
Thomomys bottae	Botta's pocket gopher	Native	Documented
Zalophus californianus	California sea lion	Native	Rare
†Status: SSC = State Candidate Species			

Table E-5. Invertebrate species recorded and potentially occurring in the Proposed Action Area

Species name	Common name	Status	Occurrence
Snails			
Helmithoglypta fieldi	Surf shoulderband	Native	Documented
Arachnids			
Uroctonites montereus	Scorpion	Native	Documented
Beetles			
Altica bimarginata	Flea beetle	Native	Documented
Aphodius sp.	Aphodiine dung beetle	Native	Documented
Athous sp.	Click beetle	Native	Documented
Cantharis sp.	Soldier beetle	Native	Documented
Dichelonys pusilla	Scarab beetle	Native	Documented
Euthysanius sp.	Click beetle	Native	Documented
Lebia sp.	Ground beetle	Native	Documented
Mordella sp.	Tumbling flower beetle	Native	Documented
Nicrophorus nigrita	Burying beetle	Native	Documented
Trirhabda sp.	Leaf beetle	Native	Documented
Flies			
Admontia sp.	Tachinid fly	Native	Documented
Bombobrachicoma sp.	Flesh fly	Native	Documented
Brachydeutera argentata	Shore fly	Native	Documented
Chaetoplagia sp.	Tachinid fly	Native	Documented
Coelopa vanduzeei	Kelp fly	Native	Documented
Copromyza sp.	Lesser dung fly	Native	Documented
Cyanus sp.	Blow fly	Native	Documented
Dasiops sp.	Lance fly	Native	Documented
Geron sp.	Bee fly	Native	Documented
Hesperodinera cinerea	Tachinid fly	Native	Documented
Leskiomima sp.	Tachinid fly	Native	Documented
Limonia sp.	Limoniid crane fly	Native	Documented
Microphthalma disjuncta	Tachinid fly	Native	Documented
Phaenicia sp.	Blow fly	Native	Documented
Sericomya chalcopyga	Syrphid fly	Native	Documented

Species name	Common name	Status	Occurrence
Sylvicola sp.	Wood gnat	Native	Documented
Tephritis sp.	Picture-winged fly	Native	Documented
Tipula sp.	Crane fly	Native	Documented
Villa sp.	Bee fly	Native	Documented
Xanthogramma sp.	Syrphid fly	Native	Documented
True Bugs			
Phytocoris sp.	Plant bug	Native	Documented
Ants, Bees, and Wasps			
Apis mellifera	European honey bee	Non-Native	Documented
Bombus crotchii	Crotch bumble bee	SSC	Expected
Bombus vosnesenskii	Yellow-faced bumble bee	Native	Documented
Chyphotes sp.	Chyphotid wasp	Native	Documented
Colletes sp.	Cellophane bee	Native	Documented
Family Braconidae	Braconid wasp	Native	Documented
Family Ichneumonidae	Ichneumonid wasp	Native	Documented
Family Mutillidae	Velvet ant	Native	Documented
Family Tiphiidae	Tiphiid wasp	Native	Documented
Formica lasioides	Field ant	Native	Documented
Hylaeus sp.	Masked bee	Native	Documented
Vespula pensylvanica	Yellow jacket	Native	Documented
Butterflies and Moths			
Apodemia mormo	Mormon metalmark	Native	Documented
Arachnis picta	Painted tiger moth	Native	Documented
Aseptis perfumosa	Noctuid moth	Native	Documented
Benjamin colorada	Noctuid moth	Native	Documented
Caradrina distincta	Noctuid moth	Native	Documented
Cheteoscelis faseularia	Geometrid moth	Native	Documented
Clostera apicalis ornata	Notodontid moth	Native	Documented
Cupido amyntula	Western tailed blue	Native	Documented
Deilinea behrensaria	Geometrid moth	Native	Documented
Dichorda species	Geometrid moth	Native	Documented
Drepanulatrix quadraria	Geometrid moth	Native	Documented
Egira rubrica	Noctuid moth	Native	Documented

Species name	Common name	Status	Occurrence
Elpiste marcescaria	Geometrid moth	Native	Documented
Eusarca falcata	Geometrid moth	Native	Documented
Eustroma semiatrata	Geometrid moth	Native	Documented
Euxoa nevada	Noctuid moth	Native	Documented
Euxoa obeliscoides	Noctuid moth	Native	Documented
Family Pterophoridae	Plume moth	Native	Documented
Furcula scolopendrina	Notodontid moth	Native	Documented
Glaucina species	Geometrid moth	Native	Documented
Heliothis zea	Noctuid moth	Native	Documented
Hydryomena quinquefasciata	Geometrid moth	Native	Documented
Hypena californica	Noctuid moth	Native	Documented
Lacinia leucogramma	Noctuid moth	Native	Documented
Lacinia strigicolus	Noctuid moth	Native	Documented
Lacinipolia cuneata	Noctuid moth	Native	Documented
Leucania oaxacana	Noctuid moth	Native	Documented
Nemoria darwiniata	Geometrid moth	Native	Documented
Neoterpes edwardstata	Geometrid moth	Native	Documented
Parabagrotis insularis	Noctuid moth	Native	Documented
Pero honestaria	Geometrid moth	Native	Documented
Pherne subpunctata	Geometrid moth	Native	Documented
Platea californica	Geometrid moth	Native	Documented
Platyperigea mona	Noctuid moth	Native	Documented
Polia delecta	Noctuid moth	Native	Documented
Protorthodes rufula	Noctuid moth	Native	Documented
Pseudorthodes communis	Noctuid moth	Native	Documented
Pseudorthodes irrorata	Noctuid moth	Native	Documented
Pseudorthodes puerilis	Noctuid moth	Native	Documented
Smerinthus cerisyi	Willow sphinx	Native	Documented
Tricholita chipeta	Noctuid moth	Native	Documented
Tricoplusia ni	Noctuid moth	Native	Documented
Ulolonche niveiguttata	Noctuid moth	Native	Documented
Xylomiges patalis	Noctuid moth	Native	Documented
Zale lunata	Noctuid moth	Native	Documented

Species name	Common name	Status	Occurrence
Zenophleps lignicolorata	Geometrid moth	Native	Documented
Zosteropoda hirtipes	Noctuid moth	Native	Documented
Lacewings, Antlions, and Allies			
Family Coniopterygidae species	Dusty wing	Native	Documented
Pseudomallada perfectus	Green lacewing	Native	Documented
Grasshoppers, Crickets, and Katydids			
Cnemotettix bifasciatus	Silk-spinning cricket	Native	Documented
Psoloessa texana	Texas range spotted grasshopper	Native	Documented
Stenopelmatus sp.	Jerusalem cricket	Native	Documented

FORMAT PAGE

APPENDIX F. Assessment of Potential Jurisdictional Waters for Honda Creek Culvert Repair at Vandenberg Air Force Base, California

FORMAT PAGE

Assessment of Potential Jurisdictional Waters for Honda Creek Culvert Repair at Vandenberg Air Force Base, California

18 February 2021

Prepared for

30th Space Wing, Installation Management Flight, Environmental Conservation
30 CES/CEIEA
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Acronyms and Abbreviations

ac	acre
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEM	digital elevation model
DOA	Department of the Army
EPA	Environmental Protection Agency
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
ft	foot/feet
ft^2	square feet
GIS	geographic information system
ha	hectare
HAT	highest astronomical tide
HTL	high tide line
in	inch
LiDAR	light detection and ranging
LYS	Lompoc yerba santa
m	meter

MHHW	mean higher high water
MHW	mean high water
MLLW	mean lower low water
MSRS	ManTech SRS Technologies, Inc.
NOAA	National Oceanographic and Atmospheric Administration
NRCS	Natural Resources Conservation Office
NWI	National Wetlands Inventory
NWPR	Navigable Waters Protection Rule
OBL	Obligate Wetland Plant
OHWM	Ordinary High Watermark
PCWQCA	Porter-Cologne Water Quality Control Act
POC	point of contact
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
UPL	Obligate Upland Plant
US	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VAFB, Base	Vandenberg Air Force Base
WIS	Wetland Indicator Status
WOUS	waters of the United States
WTI	Wetland Training Institute

1.0 Introduction

Vandenberg Air Force Base (VAFB or Base) is located on the south-central coast of California, approximately halfway between San Diego and San Francisco (Figure 1-1). Base covers approximately 99,000 acres (ac; 40,063 hectares [ha]) in western Santa Barbara County approximately 6.0 miles (mi; 9.7 kilometer [km]) from the city of Lompoc (United States [US] Air Force [USAF] 2015). VAFB is headquarters for the 30th Space Wing. The primary mission of VAFB is to launch and track satellites, test and evaluate America's intercontinental ballistic missile systems, and support aircraft operations in the Western Range. Much of VAFB is open space set aside as security or safety buffer zones for space launch activities, providing large tracts of native habitat and natural resources that require management. The topography of VAFB is varied; including hills, mountains, terraces, floodplains, mesas, canyons, beaches, and rocky headlands. VAFB occurs in a transitional ecological region that includes the northern and southern distributional limits for many plant and animal species.

A transportation network of paved and unpaved roads and trails connects operations across the base and this network requires ongoing maintenance. For instance, roads that cross waterways via culverts may require repair or cleaning to maintain flow and prevent erosion of the road bed. Coast Road is a major, paved artery connecting sites along the western edge of VAFB on South Base. Where it crosses Honda Canyon, two culverts convey water under the road and into the small estuary at the mouth of Honda Creek (aka Cañada Honda Creek). These culverts have collected silt and flood debris and require clearing and repairs to the lining to prevent further degradation. The site is located on the United States Geological Survey (USGS) *Point Arguello, California* 7.5 minute topographic map in Township 7N, Range 34W (Figure 1-2).

As a permanent blueline waterway, Honda Canyon and its associated estuary are likely to contain jurisdictional waters and wetlands protected under federal and state laws. In order to determine the extent of jurisdictional waters of the U.S. (WOUS) and waters of the state, ManTech SRS Technologies, Inc. (MSRS) conducted pre-construction surveys and mapped all potential aquatic resources under subcontract with Colorado State University (W9126G-19-2-0050; XUMUOS464719). The surveys were conducted by MSRS biologists experienced with federal jurisdictional wetland delineation and WOUS/waters of the state determination methodology. This report details the findings of the wetland and non-wetland waters surveys conducted 24 to 27 February 2020 using the most recent regulations, written policy, and guidance from the regulatory agencies; however, only the regulatory agencies can make a final determination of the boundaries of the waters.

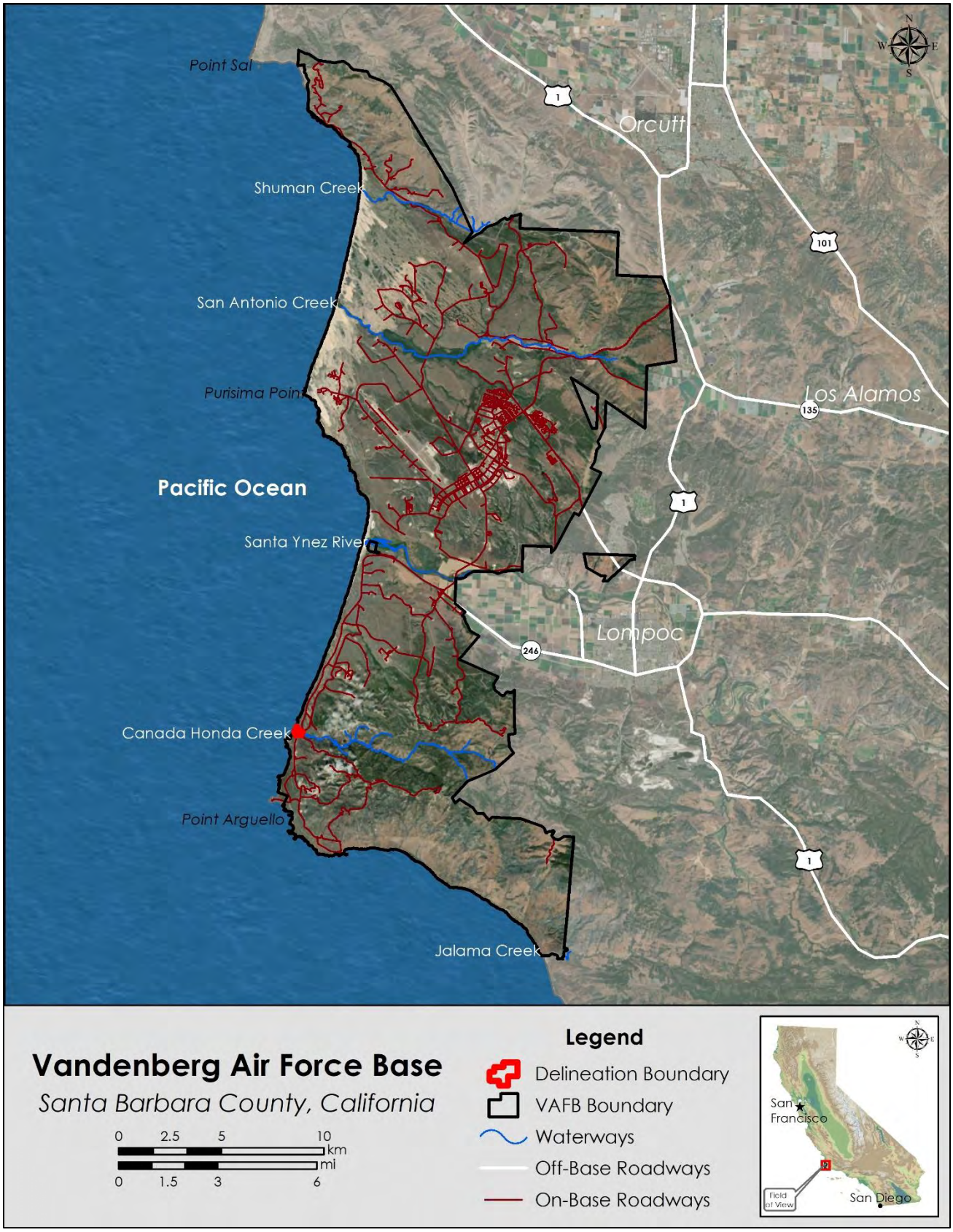

Figure 1-1. Honda Canyon culvert repair project regional location.

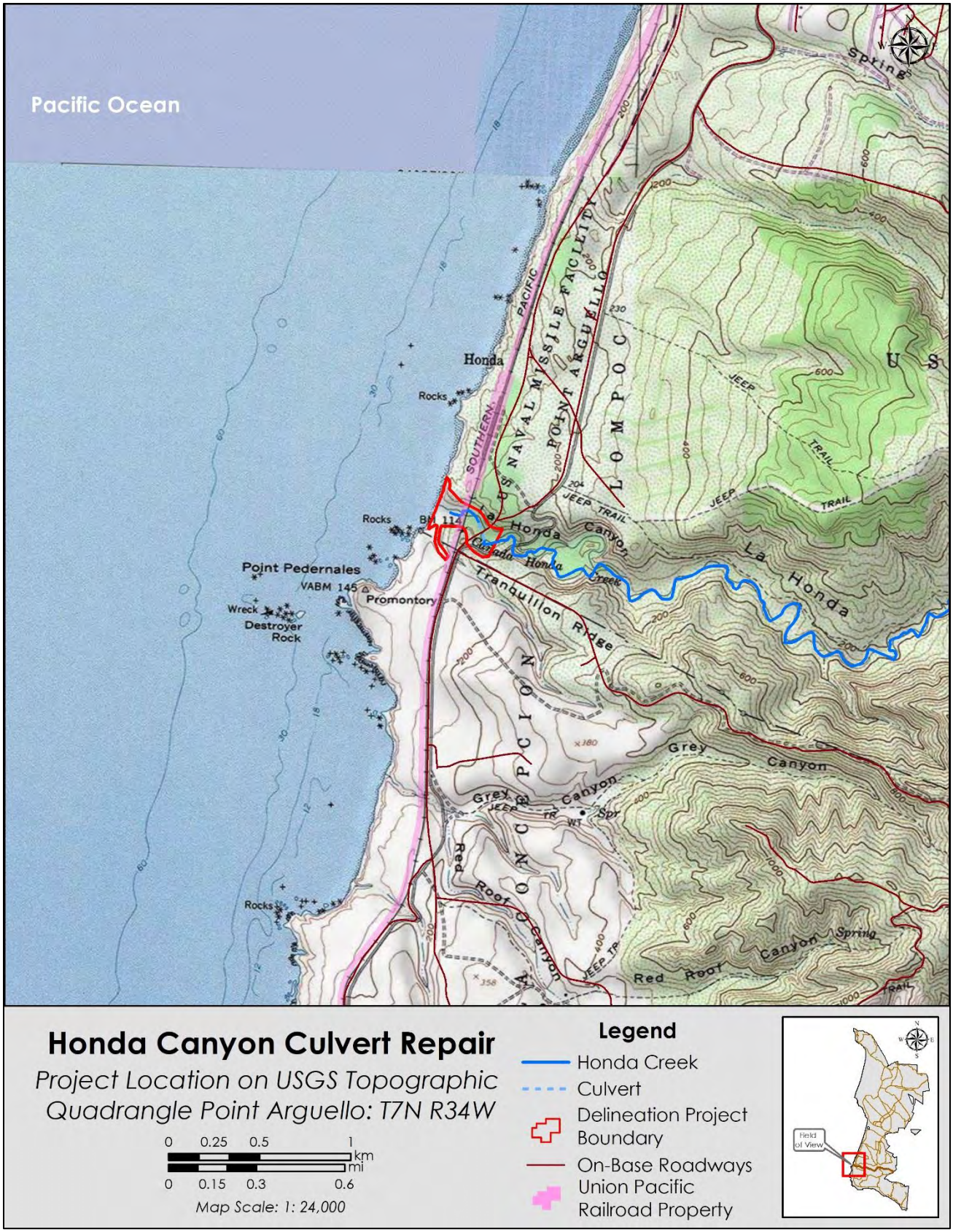

Figure 1-2. Project location on United States Geologic Service topographic quadrangle at 1:24,000 scale.

2.0 Project Description and Site Characteristics

Table 2-1 presents the contact information for individuals coordinating with VAFB and Unites States Army Corps of Engineers (USACE) for the culvert repair project.

Table 2-1. Responsible parties.

Regulatory Agency	Lead Agency & Owner/Applicant
United States Army Corps of Engineers Los Angeles District Regulatory Division 60 South California Street, Suite 201 Ventura, CA 93001-2598 Contact: Theresa Stevens, Ph.D. (805) 585-2146	**Vandenberg Air Force Base** **30th Space Wing (AF SPC)** 30 CES/CEIEA Installation Management Flight 1028 Iceland Avenue, Building 11146 Vandenberg AFB, CA 93437 Contact: Darryl York, Chief, Conservation Element (805) 605-8684

The culvert repair project will entail use of existing roads and laydown areas, as well as construction of temporary laydown areas and temporary access routes (Figure 2-1). A total of 6,840 square feet (t^2; 635 square meters [m^2]) of laydown areas will be constructed, 4,340 t^2 (403 m^2) of which is within the wetland delineation project area. The proposed access route connecting the existing road to the work sites at the top and bottom of the culvert will be 24 feet (ft; 7.3 meters [m]) wide and 910 ft (277.4 m) long. An area of approximately 150 t^2 (13.94 m^2) will be cleared at the intake end of the culverts. Sections of piping will be inserted into the existing metal culvert, then these will be sealed using grout pumped via hose from a truck on Coast Road.

In order to allow for contingencies and alternate routes, the VAFB point of contact (POC; Luanne Lum) instructed MSRS to survey the entire area of the estuary and approximately 200 feet (ft; 60.96 meters [m]) above the intake end of the culverts (Figure 2-2). The MSRS project area for the delineation totaled 17.06 ac (6.90 ha) and included portions of Union Pacific Railroad property where the trestle crosses the canyon.

Honda Creek is an 8.4 mi (13.52 km) perennial east to west running stream entirely on South VAFB that may occasionally run dry during extended drought periods (USAF 2015). The mouth of Honda Creek terminates in a small estuary with a pocket beach and ultimately connects to the Pacific Ocean, which is the nearest traditionally navigable water body. Open water is occasionally present in the estuary and large storm events can excavate the beach and throw wrack and driftwood to the outer extents of the cove. Inland from the coast, Honda Creek lies at the bottom of a steep-sided canyon that drains a large portion of South VAFB. The creek is crossed near the estuary by two major transportation corridors: Coast Road and the Union Pacific Railroad. The railroad crosses over the deep canyon via a trestle, but Coast Road was built over two 13-ft (4.0 m) diameter, 330-ft (101m) long culverts that are subject to siltation and accumulation of debris (Figure 2-3). Currently, only the northern culvert conveys water as the southern passage is blocked by silt.

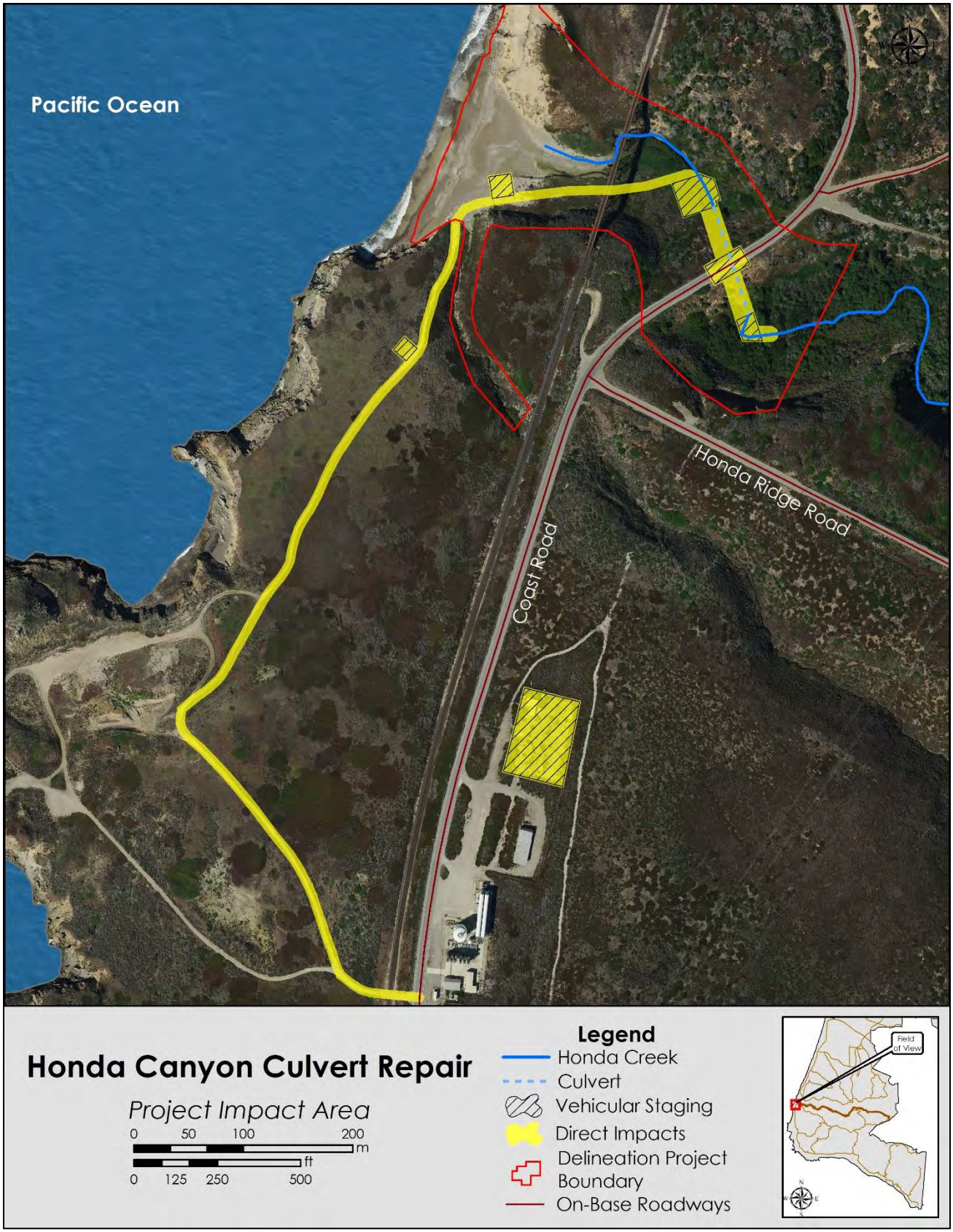

Figure 2-1. Honda Creek culvert repair project map.

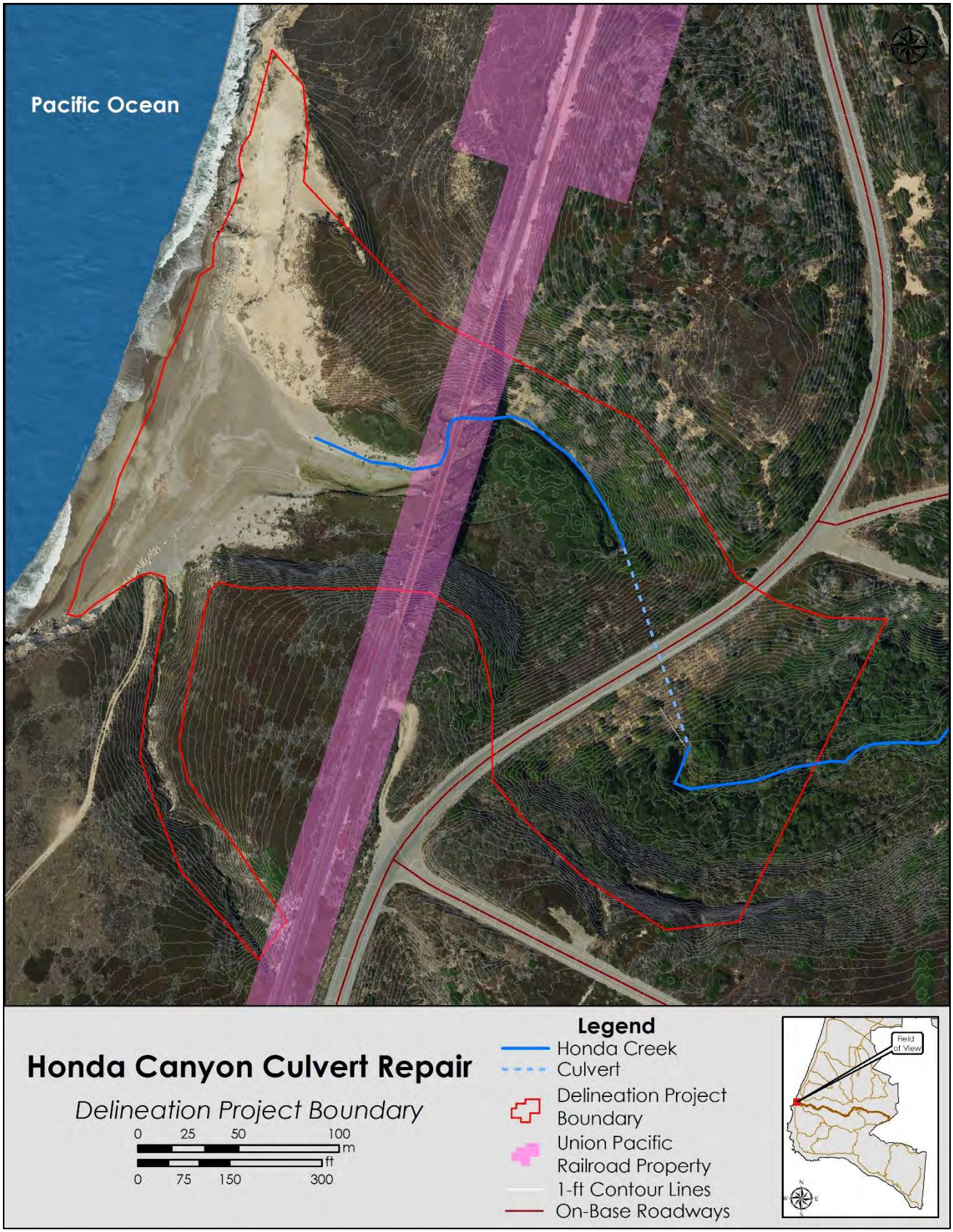

Figure 2-2. Project area for preliminary jurisdictional waters delineation.

Figure 2-3. Inlet end of the Honda Creek culverts showing trapped debris and sediment.

Above and immediately below the culverts, Honda Creek is restricted to a narrow channel by its steep canyon sides. Just before the stream reaches the ocean, at approximately the 3-ft (0.9 m) contour line and approximately 300 ft (91.4 m) below the culverts' outflow, the canyon mouth broadens into a small estuary and beach. Coast Road crosses the stream channel at an elevation of 30 ft (9.1 m) on a constructed berm pierced by the culverts. Currently, the beach has built enough of a dune to contain a small area of tidally-influenced open water in the estuary which extends upstream under the railroad trestles to meet the freshwater coming down Honda Creek (Figure 2-4). This results in a complex system of tidally influenced and freshwater flow.

Figure 2-4. Overview of the mouth of Honda Creek and Honda Beach taken from Coast Road on 26 February 2020.

3.0 Regulatory Overview

Waterways and the vegetation surrounding them are regulated to various degrees by several federal and state laws that stipulate the definitions and extents of several categories of "waters". Under Section 404 of the Clean Water Act (CWA), the USACE regulates the discharge of dredged and/or fill material into jurisdictional wetlands and WOUS. In the state of California, all WOUS are protected, as well as surface water, ground water, and additional categories of wetlands and non-wetland waters. See sections 3.1 and 3.2 for additional details and definitions of federal and state regulations.

Wetlands and non-wetland waters protected by federal or state laws are called WOUS, waters of the state, jurisdictional waters, or protected aquatic resources and may include perennial streams, beaches, lakes, vernal pools, and riparian habitats, among others. Some state-protected aquatic resources, such as vernal pools, may not be afforded protection under federal rules. Projects that disturb these waters require pre-disturbance surveys of the site and may require restoration or mitigation after completion of the project depending on the nature and extent of the temporary and permanent disturbance.

3.1 Waters of the United States Defined

The regulatory framework governing and defining WOUS has recently been overhauled. On 23 December 2019, the Environmental Protection Agency (EPA) and Department of the Army (DOA) issued a new rule repealing the 2015 Clean Water Rule. This was intended to restore the CWA to its prior language, with agencies implementing the pre-2015 rule "informed by applicable agency guidance documents and consistent with Supreme Court decisions and longstanding agency practice" (84 FR 56626). On 22 June 2020, the Navigable Waters Protection Rule (NWPR): Definition of "Waters of the United States" went into effect. This rule gives new definitions of what is included in WOUS and also stipulates waters that are specifically excluded from jurisdiction such as ephemeral streams, prior converted cropland, waste treatment systems, etc. The NWPR and its included definitions were used to determine potential jurisdictional WOUS for the Honda Creek Culvert Repair.

All WOUS are administered by the USACE. Under 40 Code of Federal Regulation (CFR) 328.3 the Regulatory Definition of "Waters of the United States" is:

> (1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;
> (2) Tributaries;
> (3) Lakes and ponds, and impoundments of jurisdictional waters; and
> (4) Adjacent wetlands.

The definition of wetlands remained unchanged, but *adjacent wetlands* are now restricted to those that:

> (i) Abut, meaning to touch at least at one point or side of, a water identified in paragraph (a)(1), (2), or (3) above;
> (ii) Are inundated by flooding from a water identified in paragraph (a)(1), (2), or (3) above in a typical year;
> (iii) Are physically separated from a water identified in paragraph (a)(1), (2), or (3) above only by a natural berm, bank, dune, or similar natural feature; or
> (iv) Are physically separated from a water identified in paragraph (a)(1), (2), or (3) above only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrologic surface connection between the wetlands and the water identified in paragraph (a)(1), (2), or (3) above in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. An adjacent wetland is jurisdictional in its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

Additional important term definitions include:

> *Ephemeral*- The term ephemeral means surface water flowing or pooling only in direct response to precipitation (e.g., rain or snow fall).

Intermittent- The term intermittent means surface water flowing continuously during certain times of the year and more than in direct response to precipitation (e.g., seasonally when the groundwater table is elevated or when snowpack melts).

Perennial. The term perennial means surface water flowing continuously year-round.

High tide line. The term high tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds, such as those accompanying a hurricane or other intense storm.

Tidal waters and waters subject to the ebb and flow of the tide. The terms tidal waters and waters subject to the ebb and flow of the tide mean those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters and waters subject to the ebb and flow of the tide end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

Ordinary high water mark. The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Typical year. The term typical year means when precipitation and other climatic variables are within the normal periodic range (e.g., seasonally, annually) for the geographic area of the applicable aquatic resource based on a rolling thirty-year period.

3.2 Waters of the State

In addition to federal protections afforded by the federal CWA and NWPR, aquatic resources are protected in California through regulation of activities within inland streams, wetlands, and riparian zones. The Regional Water Quality Control Boards (RWQCB) and the California Department of Fish and Wildlife (CDFW) both hold jurisdiction over all wetland and non-wetland WOUS under USACE jurisdiction, along with additional features such as riparian zones, ground water, and a broader scope of isolated and ephemerally-present surface and ground waters. The California Porter-Cologne Water Quality Control Act (PCWQCA) gives the State very broad authority to regulate waters of the state which are defined as surface water or groundwater, including saline waters. The local RWQCB administers the PCWQCA and determines the exact definition of waters of the state within its region.

The state of California regulates water resources under Sections 1600 to 1603 of the Fish and Game Code. Waters of the State include ephemeral, intermittent, and perennial watercourses. Jurisdiction

is extended to the limit of riparian zones that are located contiguous to the water resource and that function as part of the watercourse system. Section 2785(e) of the Fish and Game Code of California defines "riparian zones" as lands which contain habitat which grows close to and which depends on soil moisture from a nearby freshwater source.

In 2017, the state began the process of updating its definition of wetlands, and California adopted a wetland definition and procedures for discharges into waters of the state on 2 April 2019, effective 28 May 2020 (State Water Resources Control Board [SWRCB] 2019). The "*State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*" defines wetlands as follows:

> "An area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

This definition aligns closely with the USACE definition of wetlands particularly with regard to the hydrologic and soils parameters (functionally equivalent to points (1) and (2) of the state definition), but allows for inclusion of unvegetated features such as playas and mudflats that would not meet the vegetation parameter of the USACE definition of wetlands. For the State, a wetland must meet the hydrologic and soils parameters, but must only meet the vegetation parameter *if vegetation is present*. An aerial cover of over 5 percent during the growing season qualifies the site as vegetated (SWRCB 2019).

The Water Code defines "waters of the state" broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the state" includes all "waters of the U.S.". The following wetlands are also waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state,
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):
        i. Industrial or municipal wastewater treatment or disposal,
        ii. Settling of sediment,

iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,

iv. Treatment of surface waters,

v. Agricultural crop irrigation or stock watering,

vi. Fire suppression,

vii. Industrial processing or cooling,

viii. Active surface mining – even if the site is managed for interim wetlands functions and values,

ix. Log storage,

x. Treatment, storage, or distribution of recycled water, or

xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or

xii. Fields flooded for rice growing.

4.0 Methods

4.1 Non-wetland Waters of the United States

The definition of WOUS under the NWPR hinges upon the term "typical year". The agencies determine if a year is typical by comparing set time periods before the survey to the same recurring time period over the course of 30 years. This process determines if the three months prior to the survey are "normal" in comparison to the same month each year for the past 30 years, or if it is wetter or drier.

The precipitation accumulated in the three 30-day periods preceding the survey is evaluated for its relationship to the distribution of accumulations recorded for that same period over the course of the past 30 years. For the Honda Creek site, precipitation in the three 30-day periods (December 2019, January 2020, and February 2020) preceding the survey was determined from the VAFB Weather Squadron's database of precipitation. In addition, the precipitation for the 30-year base interval from February 1990 through February 2020 was determined. From the 30-year base interval, 30th and 70th percentiles were determined for each period. If the period's rainfall total was less than the 30th percentile for the base interval for that period, the period was designated as drier than normal, if it was above the 70th, it was designated as wetter than normal, and any period whose values fell between the 30th and 70th percentiles was designated as normal (Figure 4-1).

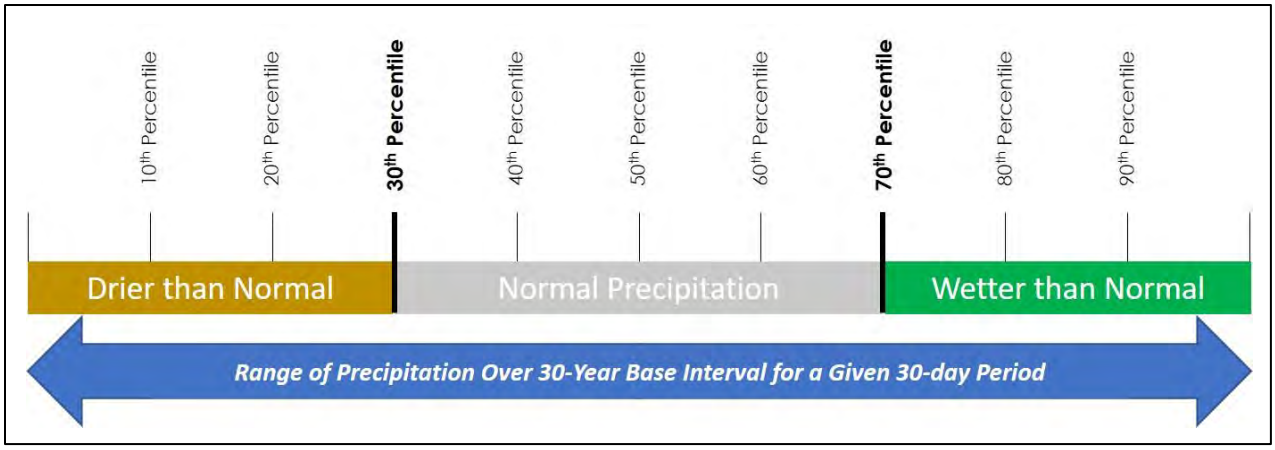

Figure 4-1. Spectrum of precipitation used to determine the condition value of a given 30-day period.

4.1.1. Non-wetland Waters of the United States as Bound by the Ordinary High Water Mark

Within the Project Area, the limits of the non-wetland, non-tidally influenced WOUS were determined using the OHWM. Identification of the OHWM was accomplished by using the USACE manual: *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar & McColley 2008). Shelving on the bank, water staining on rocks and culvert walls, and drift deposits or entrained debris are commonly-used riverine indicators of the OHWM in the field.

Based on initial evaluation of aerial imagery, the OHWM likely encompassed the channel of Honda Creek above and just below the culverts, as well as a drainage terminating on the southwest corner of the beach that was determined to be either ephemeral or intermittent and required field survey to determine its potential jurisdictional status. The project site was visited and evaluated for evidence of OHWM and indications of intermittent or ephemeral status 24 to 27 February 2020 and the OWHM was mapped in the riverine portion of Honda Canyon and in the unnamed drainage to the south.

4.1.2. Non-wetland Waters of the United States as Bound by the High Tide Line

In marine systems, the area under the jurisdiction of the CWA Section 404 is bound by the high tide line (HTL). The HTL can be identified using field indicators as stipulated in the definition (Section 3.1), or by using tidal datums established by the National Oceanographic and Atmospheric Administration (NOAA). The HTL is equivalent to the highest predicted high tide for the calendar year. NOAA maintains a tidal datum station just off Point Arguello at Oil Platform Harvest (NOAA 2020b). NOAA tide stations provide a local set of tide data including daily tides, tide predictions, and datums including mean sea level (MSL), mean high water (MHW), mean lowest low water (MLLW), etc. For this station, the highest high tide predicted in 2020 is 6.96 ft (2.12 m) above mean lowest low water (NOAA 2020c; Figure 4-2).

All of these NOAA datums are in reference to the MLLW mark. In other words, MLLW corresponds to zero for this dataset. This raises a complication when tidal datums are used to determine positions on dry land using elevational contour maps, because contour lines are referenced to a zero elevation

at *mean sea level.* In the case of Oil Platform Harvest, this puts the zero elevation of the contour lines 2.72 ft (0.83 m) *above* the zero elevation for the tidal datums. This is displayed pictorially in Figure 4-1. Thus, the highest tide falls at a *contour elevation* of 4.24 ft (1.29 m) on dry land.

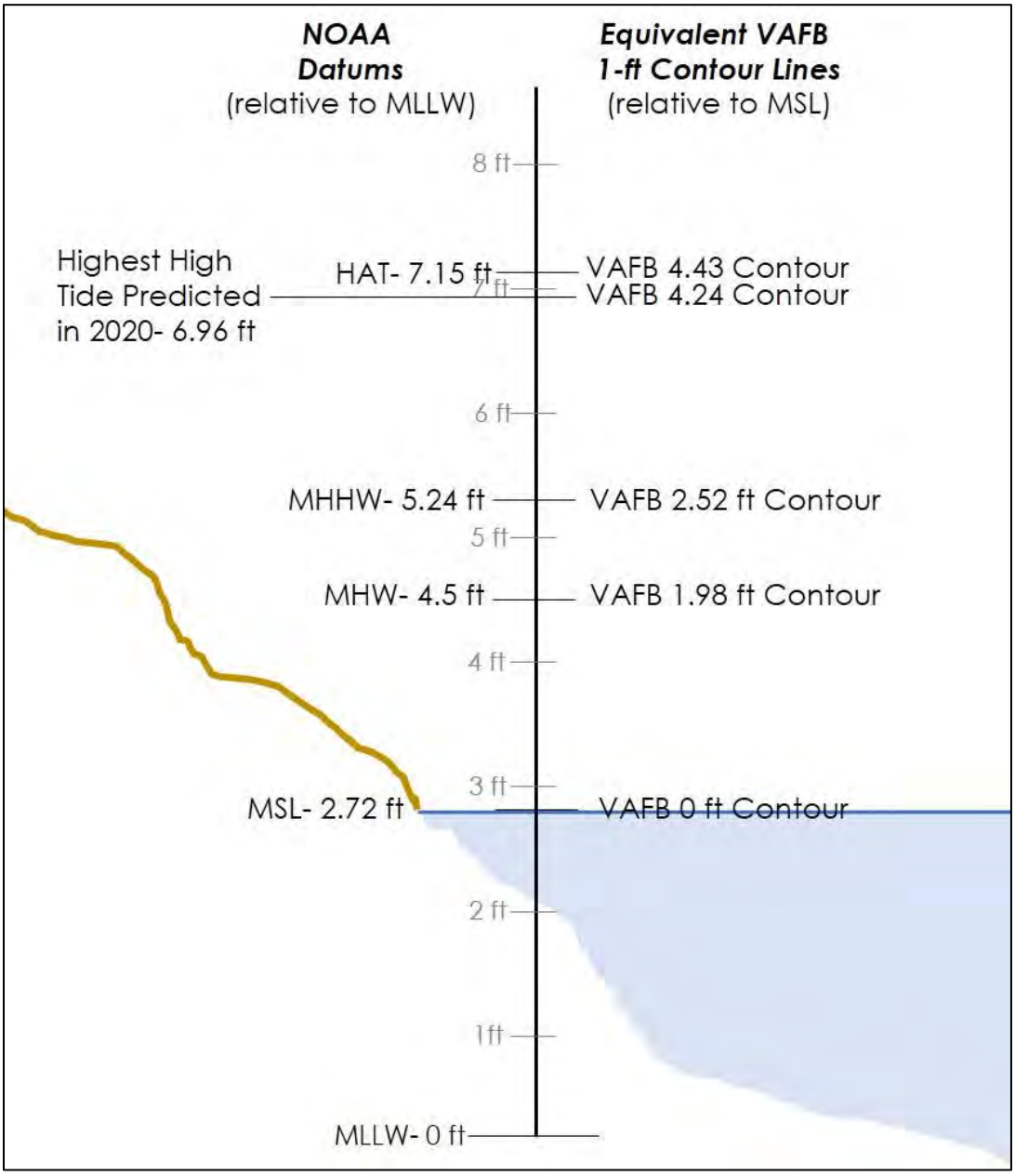

Figure 4-2. Datum elevations and corresponding VAFB contour lines at NOAA tide station Oil Platform Harvest. Because tidal datums are relative to mean lowest low water (MLLW), while contour lines are relative to mean sea level (MSL), the highest astronomical tide falls along the 4.43 contour line at Honda Creek.

Using 1-ft (0.3-m) elevational contours in a digital elevation model (DEM) developed from recent light detection and ranging (LiDAR) imagery collected in 2017, the CWA Section 404 jurisdictional boundary in the marine system was determined based on the 4-ft (1.22-m) contour line to

approximate the location of the highest high tide for the year and the HTL boundary for the jurisdictional waters.

Because of the riverine flow of Honda Creek into the estuary, the HTL was used to establish the CWA Section 404 limits in the tidally-influenced portion of the project, but above the HTL, the OHWM was used. This intersection point was below the culvert outflow just above the trestles, and at the base of the un-named drainage, so the OHWM was used upstream of these features.

4.2 Jurisdictional Wetland Delineation

The remaining aquatic resources subject to federal protection consisted of potential jurisdictional adjacent wetlands bordering or within the active channel of Honda Creek as well as possible salt marsh wetlands in the estuary. These sites were evaluated 24 to 27 February 2020 over the course of four field days.

The USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* requires that all of the following three elements be present within a potential wetland feature in order for it to qualify as a jurisdictional wetland: hydric vegetation, wetland hydrology, and hydric soils (USACE 2008). This manual was used to delineate wetlands at Honda Creek. The USACE has developed a field form for collection of data for each element; these completed forms are included as Appendix B.

Wetland surveys focused on evaluating potential wetland features for each required element were conducted within the Project Area between 24 and 27 February 2020. In addition to field surveys, aerial imagery of the Project Area from 2013 and 2016 and the Soil Survey of Northern Santa Barbara Area, California (United States Department of Agriculture [USDA] 1972) were reviewed. The Work Order issued to MSRS did not include permission to dig in Union Pacific Railroad-owned property, so wetland boundaries were interpolated in this area based on surface indicators (Figure 2-2).

Vegetation

Hydric vegetation is defined as having more than 50 percent of the dominant species able to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. When classifying vegetation, plants are grouped into four strata depending on growth habit and morphology (Table 4-1; USACE 2008).

Table 4-1. Vegetation Strata Descriptions.

Stratum	Code	Description
Herb	H	All non-woody plants regardless of height
Sapling/Shrub	S	Woody plants less than 3.0 inch diameter at breast height regardless of height
Tree	T	Woody plants greater than or equal to 3 inches at breast height, regardless of height
Woody vine	V	Woody climbing plants regardless of height

Dominant species were determined for each strata using the “50/20 rule”. Plants were listed as dominant in order of descending abundance until species comprising 50 percent of the vegetation in a particular stratum, as determined by relative cover, had been tallied. Any additional species occupying at least 20 percent of the stratum were also listed as dominants. Relative cover was determined by visual estimation.

To determine if the vegetation present was hydric, the wetland indicator status (WIS) for the dominant species was determined by consulting the *National Wetland Plant List: 2016 Wetland Ratings* (Lichvar *et al.* 2016). For species not listed in Lichvar *et al.* (2016) that grow in a wetland context in VAFB, the *National List of Vascular Plant Species that Occur in Wetlands* (United States Fish and Wildlife Service [USFWS] 1997), was reviewed as well. These resources rank plants in one of five categories based on their tolerance of or preference for growing in permanently inundated soils (Table 4-2). Species not explicitly ranked in these resources were assumed obligate upland (UPL) unless supporting evidence was available to the contrary.

The threshold for hydrophytic vegetation is met when more than 50 percent of the dominant species are rated facultative plants (FAC) or wetter. In borderline cases, such as those where all of the dominants were rated FAC or drier, a secondary evaluation was made using the Prevalence Index to clarify status of the vegetation. The Prevalence Index takes all plants and their indicator status into account; it is not restricted to dominant species. Calculation of the Prevalence Index followed methods outlined in USACE (2008), with Prevalence Index Scores less than or equal to 3 supporting findings of hydrophytic vegetation.

Table 4-2. Plant Species Wetland Indicator Status.

Code	WIS*	Description
OBL	Obligate Wetland	Plants that almost always occur (estimated probability 99%) in wetlands under natural conditions, but may also occur rarely (estimated probability 1%) in non-wetlands under natural conditions.
FACW	Facultative Wetland	Plants that usually occur (estimated probability 67% to 99%) in wetlands, but also occur (estimated probability 1% to 33%) in non-wetlands under natural conditions.
FAC	Facultative	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.
FACU	Facultative Upland	Plants that sometimes occur (estimated probability 1% to 33%) in wetlands, but occur more often (estimated probability 67% to 99%) in non-wetlands under natural conditions.
UPL	Obligate Upland	Plants that rarely (estimated probability 1%) occur in wetlands, but occur almost always (estimated probability 99%) in non-wetlands under natural conditions.

The USFWS is the principal US Federal agency tasked with providing information to the public on the status and trends of our Nation's wetlands. The USFWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands. NWI data are used by natural resource managers, within the USFWS and throughout the Nation, *to promote the understanding, conservation and restoration of wetlands.* The NWI data is available online and was the first resource consulted to determine potential aquatic resources in Honda Canyon. The NWI indicated that a combination of marine and riverine waters was likely present. The extents of these resources were then verified in the field.

Soils

Hydric soils are defined as those that formed under condition of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil

column (Federal Register 59 94-16835). Anaerobic conditions are the result of repeated saturation and microbial activity, and they can result in dramatically different soil colors and patterns than soils that experience drier aerobic conditions. Soils that have been subjected to prolonged saturation experience an accumulation of organic matter and reduction, translocation, or accumulation of minerals, particularly iron, manganese, sulfur, or carbon compounds, which leaves visible and persistent characteristics in the soil. These characteristics can persist in both wet and dry periods, and are used as "indicators" of hydric soil conditions (Wetland Training Institute [WTI] 2017).

Soil profiles at selected potential wetland sites were examined for indicators of hydric soils using the procedure detailed in *Field Indicators of Hydric Soils in the United States* (US Department of Agriculture, Natural Resources Conservation Service [USDA NRCS]; 2018). Test pits were excavated and an intact soil core section, at least 12 inches (in; 30.48 centimeters [cm]) in height, spanning the vertical range of the pit, was removed from each hole where possible. Buried rocks, gravel, and tree roots limited the depth of excavation at some locations. Soil color and texture of all layers encountered were characterized from this sample. Soil color was determined by the comparison of moist samples to the color plates in the *Munsell Soil Color Charts* (2000). Texture was evaluated by touch, following procedures adapted from S. Thien (WTI 2017). The vertical span and distribution of various soil layers, as determined by color and textural differences, was measured and noted. Hydric status determinations were made though review of USDA NRCS (2018).

Hydrology

Areas with wetland hydrology are either permanently or periodically inundated at mean water depths less than or equal to 6.6 ft (2.0 m) or the soil is saturated to the surface for at least 14 days during the growing season of the prevalent vegetation. A determination of wetland hydrology requires the finding of at least one primary indicator, such as a water table within 12 in (30.48 cm) of the surface, or two secondary indicators, such as the FAC-neutral test or sediment deposits (USACE 2008).

Potential wetland areas were visually inspected for surface hydrology indicators, such as inundation, water marks, drift lines, sediment deposits, and water stained leaves. Where covered under the VAFB Work Order for permission to dig, soil pits were excavated with a 16 in (40.64 cm) drain spade to a depth of at least 12 in (30.48 cm) wherever possible to determine the presence of sub-surface indicators such as the depth of the water table, depth of saturated soil, and presence of oxidized rhizospheres surrounding live roots.

4.3 Waters of the State

Waters of the state in California include all WOUS, surface and ground water, and possible additional areas under the state definition of wetlands and the allowance of riparian zones as jurisdictional. Additional wetlands such as mudflats may be included under the state's definition which allows a site with wetland hydrology and hydric soils to be a jurisdictional wetland if it does not have vegetation. If vegetation is present at greater than 5 percent cover, it must still be hydrophytic vegetation. Riparian zone boundaries are determined by the presence of riparian vegetation which grows close to and which depends on soil moisture from a nearby freshwater source.

Based on preliminary data such as aerial imagery, waters of the state were likely to consist of riparian habitats such as salt marsh and willow-dominated vegetation along the creek channel, as well as the main channel of Honda Creek and the un-named ephemeral side drainage. The extents of these aquatic resources were mapped in the field based on the VAFB vegetation map descriptions of the habitats (Wildscape 2009).

4.4 Field Surveys and Mapping

Field surveys were conducted between 24 and 27 February 2020. Wetland and non-wetland waters mapping was conducted throughout the estuary and upstream of the culvert intake. Where Union Pacific Railroad property intersected the project area, no soil disturbance was conducted and all mapping was done using surface indicators only.

USACE wetland delineation forms characterizing vegetation, hydrology, and soils (if assessed) were completed for each plot. The locations of soil test pits were mapped with Global Positioning System units. If indicators of wetland hydrology, hydric vegetation, and hydric soil were observed at a potential wetland site, boundary lines were then determined with transects of additional soil pits, then mapped using the distribution of indicators of vegetation, hydrology, and hydric soils.

4.5 Classification Systems Used

Several classification systems were used to characterize the different resources. Federal wetland resources were categorized using the Cowardin classification system for wetlands (USFWS 1979). The Cowardin classification system separates wetland types based on five Systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. These systems then divide into Subsystems and Classes (Figure 4-3).

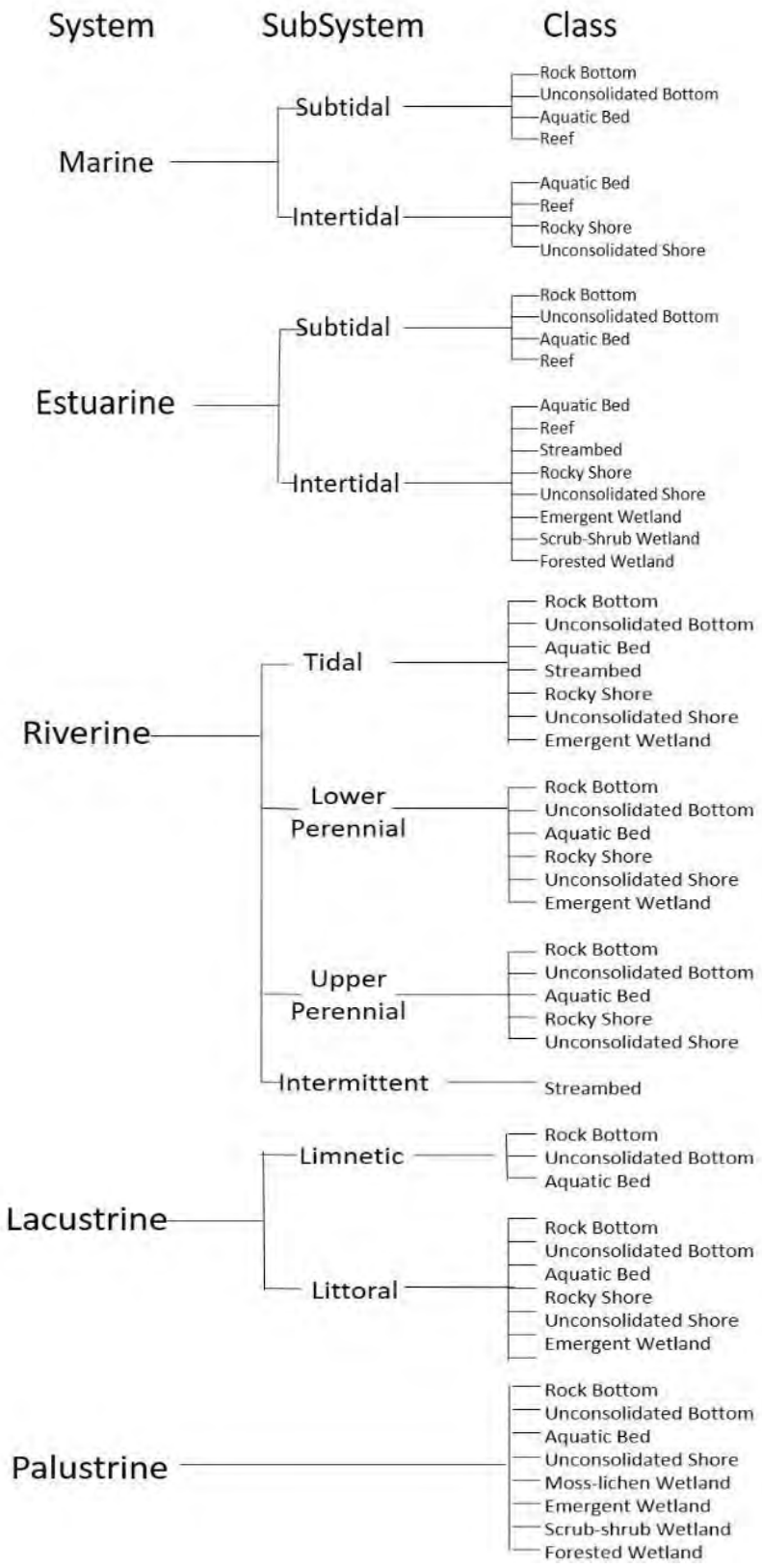

Figure 4-3. Cowardin wetland classification system.

Federal aquatic resources were also assigned a category based on the USACE Preliminary Jurisdictional Determination Form. The ACOE divides waters into several resource categories such as Harbor/Ocean, Tidal Wetland, Non-Tidal Wetland, River/Stream, Lake, Pond, Other, Vernal Pool, Riparian Wetland, Ephemeral Stream/River, Intermittent Stream/River, Perennial Stream/River, Pond/Lake, Vegetated Shallows, Bay/Harbor, Lagoon, and Ocean. State jurisdictional waters were categorized as: Tidal Wetland, Non-tidal Wetland, Riparian Zone, Stream Channel, or Estuary.

5.0 Results

5.1 Existing Field Conditions

Existing field conditions observed at Honda Creek included primary land use as transportation corridors conveying VAFB and non-VAFB traffic along Coast Road and the Union Pacific Railroad. Occasional recreational use of the small beach is likely, as evidenced by human and dog footprints observed during wetland surveys. Evidence of past flood and storm surge events was present in the form of large driftwood deposits at the outer edges of the beach above the high tide line. These storm surge events are capable of scouring the beach and removing the dune currently impounding a small estuary pool. Recent years of drought and low winter rainfall have not produced storm surges or river flow sufficient to clear the dune.

Flow in Honda Creek in February was continuous but low as a result of the low winter rainfall early in the 2019-2020 rain year. Only 5.35 in (13.59 cm) were recorded for the rain year (rain years in California begin on 1 September and end on 30 October) by the end of February, with the majority of that accumulating in November and December 2019 (USAF 30th Weather Squadron, 2020).

Of the three 30-day periods preceding the survey, two periods were determined to be drier than normal (below the 30th percentile), while one was normal (between the 30th and 70th percentiles; Table 5-1). Table 5-1 gives the precipitation range for the base interval, the 30th and 70th percentile break points for each 30-day period, and the rainfall accumulation for the three months prior to the survey. December 2019 and January 2020 were both at the upper end of the normal range, with December rainfall in 2019 just shy of a wetter than normal year (Figure 5-1). In contrast, February was unusually dry and in fact was the *driest* February in the 30-year base interval. Thus, the observations at Honda Creek were made in a slightly atypical year, and a typical year would produce wetter conditions.

Table 5-1. Condition assessment for typical year determination using Vandenberg Air Force Base precipitation data.

Period	30-Year Base Interval			2019/2020 Precipitation	Condition Value
	Precipitation Range	30th Percentile	70th Percentile		
Period 1: December	0.04-7.78	1.00	3.12	2.88	Normal
Period 2: January	0.03-11.61	1.00	4.00	0.51	Drier than normal
Period 3: February	0.05-14.49	1.27	4.48	0.05	Drier than normal

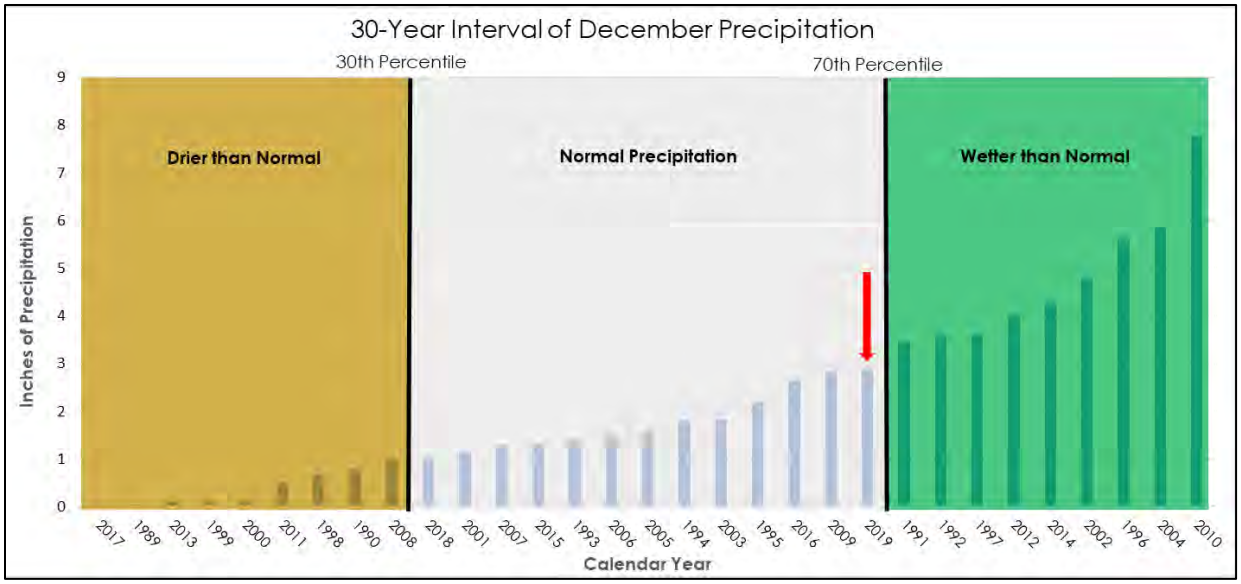

Figure 5-1. December precipitation over the 30-year base interval, ordered by increasing precipitation amount. Years with less than one inch of rain (below the 30th percentile) are drier than normal, while years with more than 3.12 inches (above the 70th percentile) are wetter than normal. December of 2019 fell just at the top end of the normal precipitation range.

Honda Creek was determined to be a perennial watercourse. Despite a slow start to the rain year, and a slightly drier than normal condition, the channel had flow at the time of surveys in the end of February. In typical years, higher flow is likely. The total rainfall accumulation for February was 0.05 in (0.13 cm), indicating that the stream is likely conveying groundwater, not just runoff from precipitation events. In addition, hydrogen sulfide odor was detected in soil pits excavated in the main channel, indicating long-term inundation and anaerobic conditions. In further support of Honda Creek as a perennial stream, detailed flow monitoring conducted by MSRS in 2012 during monitoring of invasive tree removal upstream of Coast Road documented flow in July and August, typically very dry months for this region (MSRS, unpublished data).

In contrast, the unnamed drainage to the south of the main channel was found to be ephemeral and thus not a potential jurisdictional water as a WOUS. Although this channel exhibits a bed and banks, there were no indicators that it flows in response to anything other than precipitation events. Vegetation in the channel was primarily upland species, indicating that flow is not continuous enough to scour seeds or seedlings nor create anaerobic conditions such that upland species cannot persist. However, the presence of the bed and banks makes delineation of the OHWM possible, so surface flow is present to the extent that this drainage does qualify as waters of the state.

As a complex system of freshwater and marine habitats with elements of upland vegetation and mobile sand dunes, the Honda Canyon mouth had a diverse range of aquatic resources. MSRS mapped vegetation communities in the entire project area, and mapped aquatic resources wherever they occurred.

5.2 Vegetation Communities

Vegetation communities were a mix of riparian and upland types, some of which were also protected waters (Table 5-2, Figure 5-2). The entire MSRS project area consisted of 15.73 ac (6.37 ha), 5.34 ac

(2.16 ha) of which consisted of some category of protected aquatic resource by definition or a portion of the mapped vegetation type fell within the OHWM or HTL. Coastal Strand is included as an aquatic resource here, but only a portion of it fell within the HTL, so not all of the area is considered WOUS. In addition to mapping the vegetation communities, MSRS noted all plant taxa that occurred in the project area, supplied as Appendix D.

Hydrophytic vegetation was found during wetland delineations, generally indicated by the plot passing the dominance test. Some plots did not pass the dominance test but did pass the prevalence index test. Riparian vegetation that would qualify a site as a riparian zone under the waters of the state definition were detected in the two marsh vegetation types and in the arroyo willow scrub. The plants that comprise these vegetation types rely on access to fresh or brackish water, but do not necessarily occur within wetlands. See Section 5.5.2 for additional details of wetland delineation results.

Table 5-2. Results of vegetation community mapping in Honda Canyon.

Vegetation Type	Cowardin Classification	Acres
Aquatic Resources/Riparian Zones		
Coastal Strand	Marine intertidal unconsolidated shore (beach)	1.69
Coastal and Valley Freshwater Marsh	Palustrine emergent wetland	0.33
Open Water	Estuarine subtidal unconsolidated bottom	0.47
Open Water	Lower perennial unconsolidated bottom	0.07
Coastal Salt Marsh	N/A-Not waters of the US, but waters of the State	0.74
Central Coastal Arroyo Willow Riparian Forest and Scrub	N/A-Not waters of the US, but waters of the State	2.04
	Aquatic Resources/Riparian Zone Total	*5.34*
Non-Aquatic Resources/Upland Habitats		
Acacia	N/A - Not Wetland or Non-wetland Waters	1.14
Central Coastal Scrub	N/A - Not Wetland or Non-wetland Waters	5.70
Central Coastal Scrub / Iceplant	N/A - Not Wetland or Non-wetland Waters	2.84
Coastal Bluff	N/A - Not Wetland or Non-wetland Waters	0.52
Foredune	N/A - Not Wetland or Non-wetland Waters	0.20
	Non-Aquatic Resources/Upland Habitats Total	*10.20*
	Grand Total	***15.74***

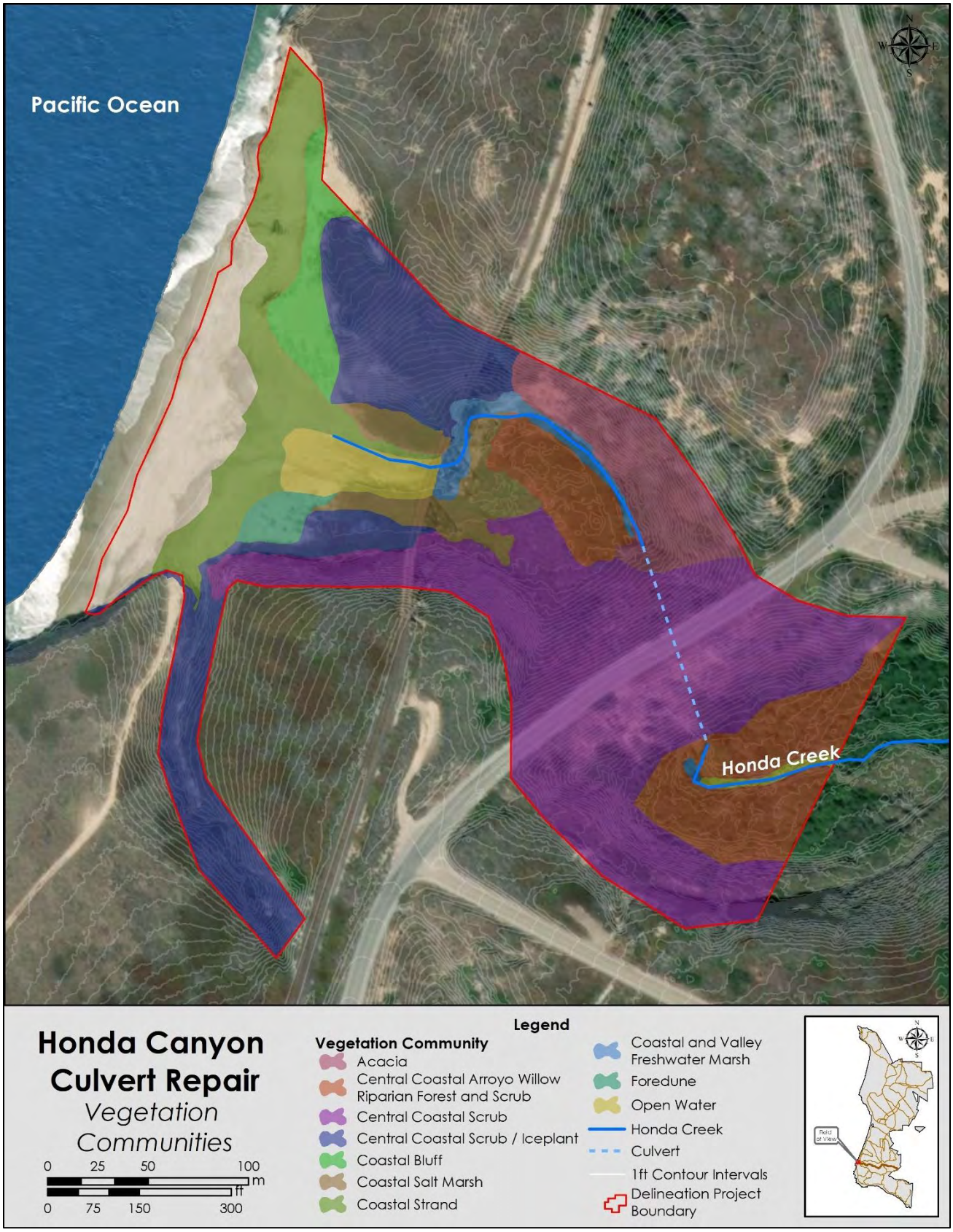

Figure 5-2. Vegetation Communities mapped in Honda Canyon.

5.3 Soils

Soils in the Honda Canyon mouth area consist of stony soils, loams, and sands (Figure 5-3). Although some of these soil series and associates can contain inclusions of hydric soils, the mapping resolution of the 1972 map is very coarse and no soils were mapped that would automatically indicate the presence of hydric conditions. Soils that were likely to include inclusions of hydric soils were those along the Honda Canyon bottom, including Elder loam, gently sloping; and Coastal Beach, Sandy. Elder loams occur on flood plains and alluvial fans and are generally quite fertile with high water holding capacity (USDA 1972)

Soil pits excavated during wetland delineations did not show evidence of hydric soils outside of the main wetted channel, and were a mix of layers of sand, clay loam, sandy loam, clay, and loamy sand. Hydric soils were only indicated by the presence of hydrogen sulfide odor in the main wetted channel. See Section 5.5.2 for additional details of wetland delineation results.

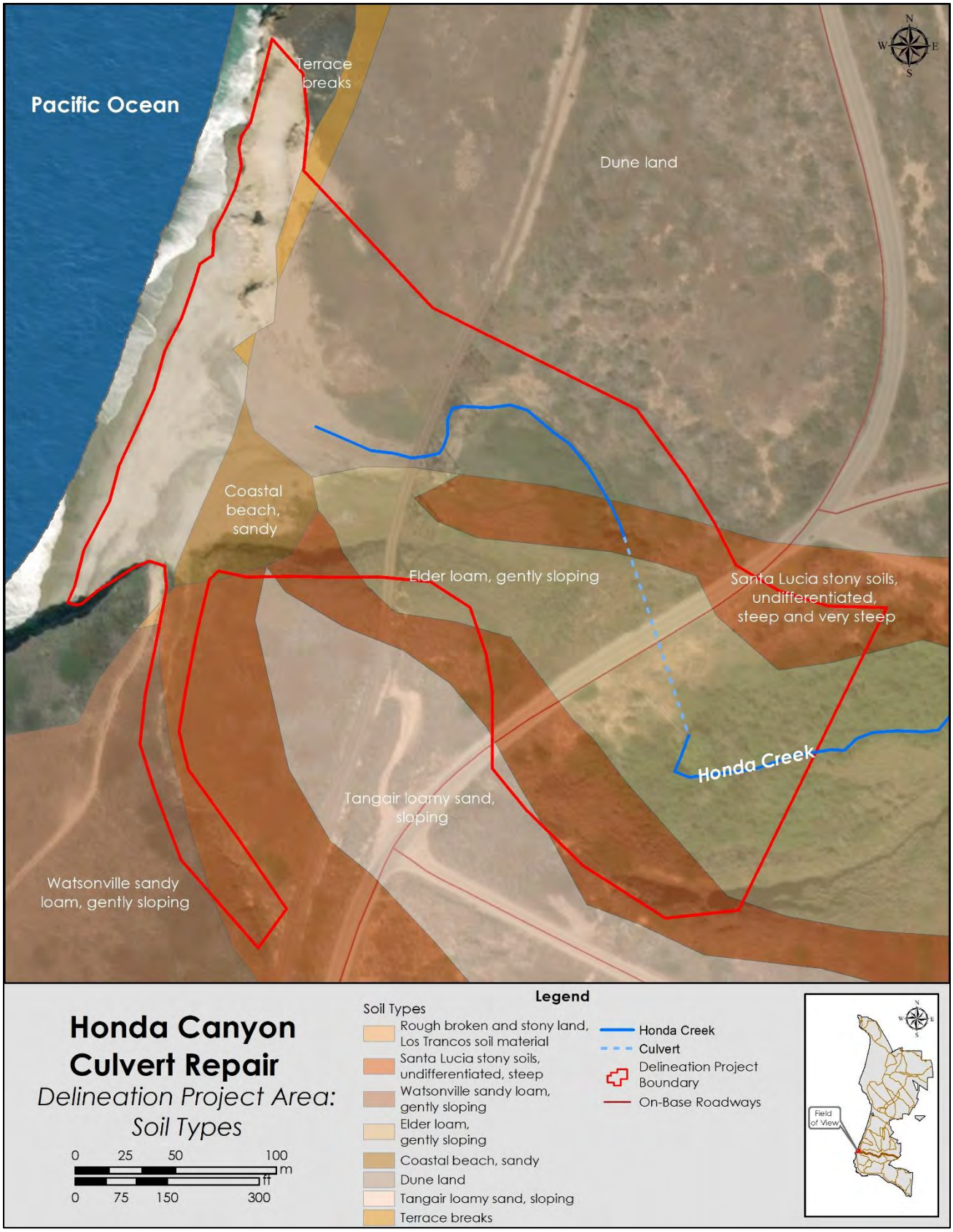

Figure 5-3. Soil types mapped in the project area.

5.4 Hydrology

The primary sources of surface water at the site are Honda Creek, running from east to west, and the Pacific Ocean, bordering the western side of the site. The Pacific Ocean is the nearest traditional navigable waterway, and Honda Creek ultimately ends at the Pacific Ocean. Honda Creek is itself a USGS blue-line waterway (Figure 1-2). Manmade influences on the hydrology are confined to those associated with the transportation corridors, namely the trestles supporting the railroad and the culverts conveying water under the Coast Road roadbed. Manmade influences such as irrigation or pumping are not present.

Wetland delineation surveys detected indicators of wetland hydrology along the main wetted channel of Honda Creek in the form of surface water, saturation, and high water table. Likewise, the open water of the estuary lagoon also met these indicators of wetland hydrology. See Section 5.5.2 for additional details of wetland delineation results.

The intersection of the freshwater and tidally-influenced systems lies at the point "where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects" (40 CFR 328.3). At the Honda Creek site, this point is just upstream of the railroad trestles where the freshwater channel of Honda Creek broadens out to meet the open water lagoon pool. At this point, riverine OHWM indicators appear and were used upstream. Below this point, the HTL was used to delineate potential jurisdictional waters.

5.5 Potential Jurisdictional Waters of the United States as Defined by the Ordinary High Water Mark and High Tide Line

5.5.1. Non-wetland Waters of the United States

A total of 0.47 ac (0.19 ha) of the project area were within the riverine OHWM (Table 5-3, Figure 5-4). This included non-wetland vegetation such as a small portion of Acacia that was within the OHWM as well as delineated wetlands and open water in the stream channel. Entrained debris (Figure 5-5) and a clear bed and banks (Figure 5-6) were the most useful indicators of OHWM for the riverine portion of the system.

An additional 2.27 ac (0.92 ha) of WOUS was delineated in the estuary and was bounded by the HTL. This included the open water in the estuary as well as Coastal Salt Marsh and upland vegetation that would be inundated during the high tide level represented by the HTL. The Honda estuary is a dynamic environment subject to topographic alteration from storm surge, runoff events, and wind sculpting. This has resulted in a slight degree of mis-match between the current topography and that mapped during the LiDAR flights in 2017. For instance, the 4.0-ft (1.2-m) contour line used for the HTL bisects the open water lagoon at its southwestern corner. The portion outside of the HTL has a direct surface water connection to the rest of the lagoon, thus it is included as WOUS.

Table 5-3. Results of surveys for waters of the United States.

Vegetation Type	Resource Type	Acres
Waters of the United States Bounded by the Ordinary High Water Mark or Delineated as Adjacent Wetlands		
Acacia	Other*	0.03
Central Coastal Arroyo Willow Riparian Forest and Scrub	Other*	0.24
Coastal and Valley Freshwater Marsh	Non-Tidal Wetland	0.13
Open Water	Perennial Stream/River	0.07
	Total	*0.47*
Waters of the United States Bounded by the High Tide Line or Delineated as Adjacent Wetlands		
Central Coastal Arroyo Willow Riparian Forest and Scrub	Other†	0.11
Central Coastal Scrub / Iceplant	Other†	0.11
Coastal and Valley Freshwater Marsh	Tidal Wetland	0.18
Coastal and Valley Freshwater Marsh	Tidal Wetland (Adjacent)	0.02
Coastal Salt Marsh	Other†	0.68
Coastal Strand	Other	0.70
Open Water	Lagoon	0.42
Open Water	Lagoon**	0.05
	Total	*2.27*
	Grand Total	***2.74***

* Upland vegetation type bounded by the OHWM

† Upland vegetation type bounded by the HTL

** Open water above HTL but with direct surface connection to open water below HTL

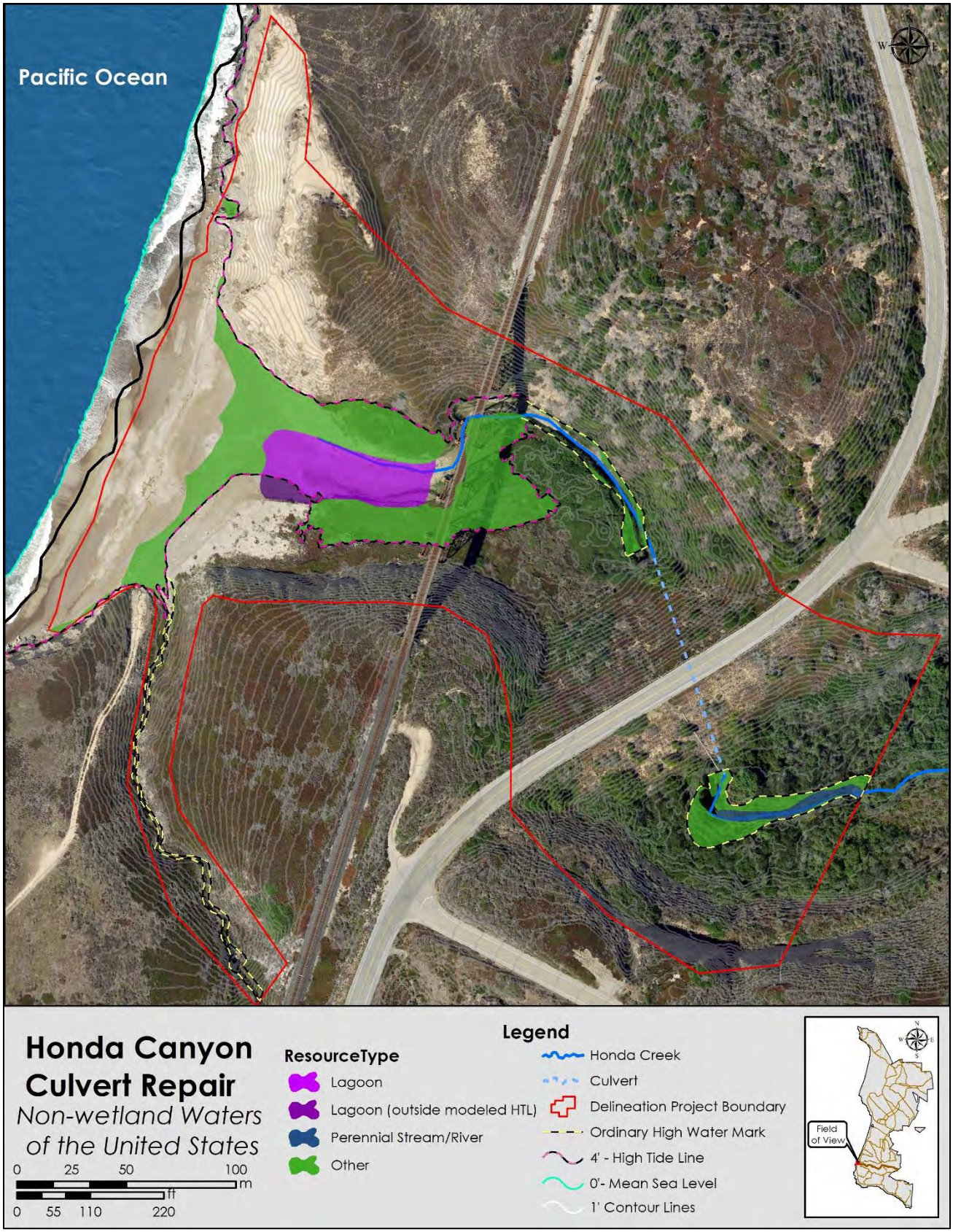

Figure 5-4. Non-wetland waters of the United States mapped in Honda Canyon.

Figure 5-5. Entrained vegetation deposited during a high-water event, likely this winter. This is an indication of the OHWM.

Figure 5-6. Bed and banks of Honda Creek upstream of the culvert intakes.

5.5.2. Potential Wetland Waters of the United States

Initial data searches of the NWI indicated that there were likely to be estuarine and riverine wetlands at the site (Figure 5-7). Both the main channel of Honda Creek and the unnamed side drainage were mapped as riverine waters, and a band along the periphery of Honda Creek was mapped as likely to contain freshwater forested/shrub wetlands. The mouth of the canyon was mapped as estuarine wetlands and deepwater habitats.

During field surveys, WOUS that qualified as potential jurisdictional wetlands consisted of palustrine emergent wetlands (Figure 5-8). Two short reaches of Honda Creek supported wetlands in the main wetted channel. These were characterized by an arroyo willow overstory and primarily aquatic plants growing in the channel including watercress (*Nasturtium officinale*), sword leaved rush (*Juncus ensifolius*), and bulrush (*Bolboschoenus maritimus*). The primary indicator of hydrophytic plants was that the plots passed the dominance test. Some sites did not pass the dominance text but did pass the prevalence index test. Hydrologic indicators generally consisted of surface water, a high water table, and saturation. The only indicator of hydric soils encountered was A4, Hydrogen Sulfide Odor found in soil pits excavated on the edge of the wet channel. Hydrogen sulfide odor is a strong indicator of hydric soils as it is the result of anaerobic bacteria reducing sulfate in the soil to hydrogen sulfide gas. Sulfur is generally the last element to be reduced and is thus an indicator of long-term inundation and anaerobic conditions.

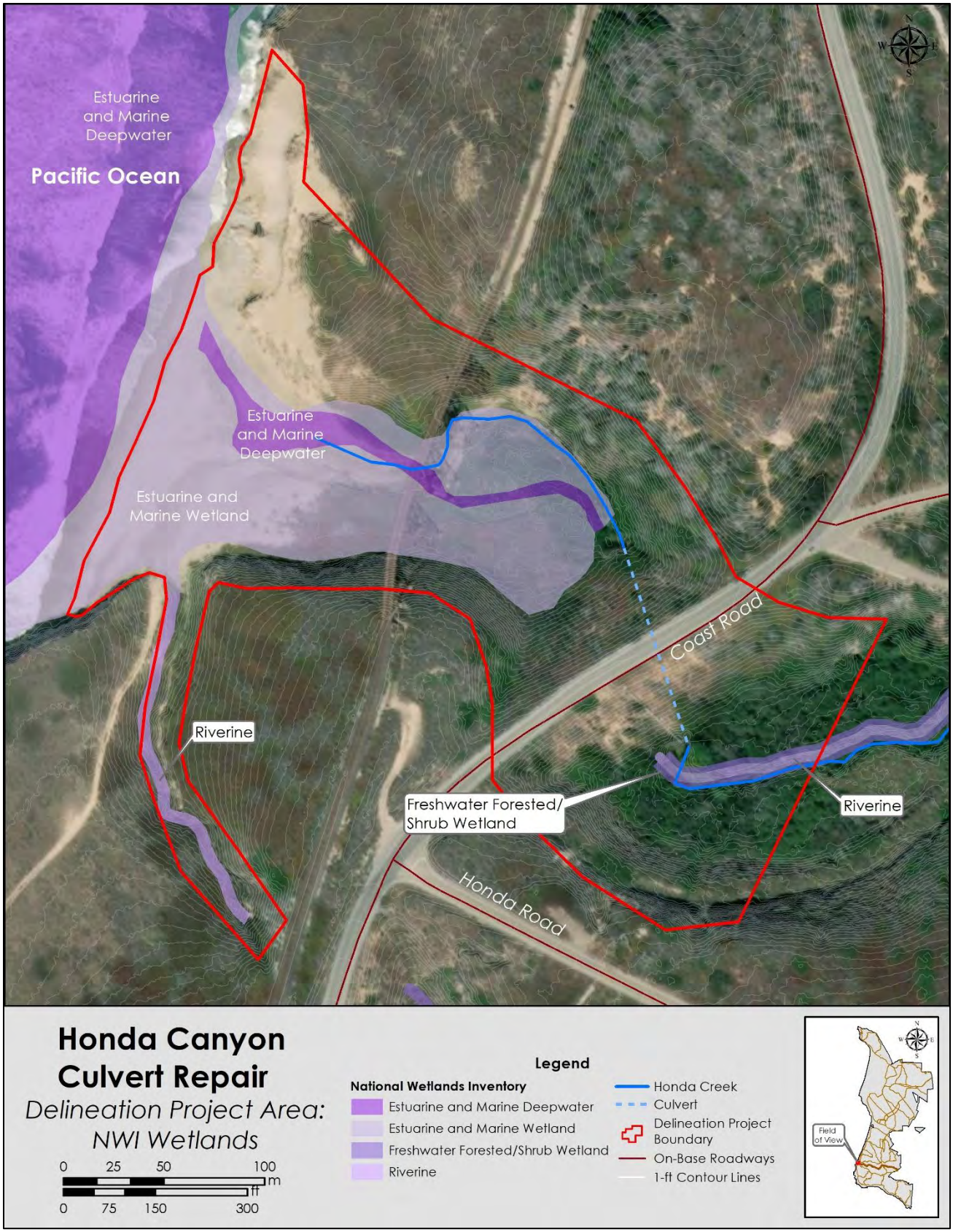

Figure 5-7. National Wetlands Inventory mapped waters in the project area.

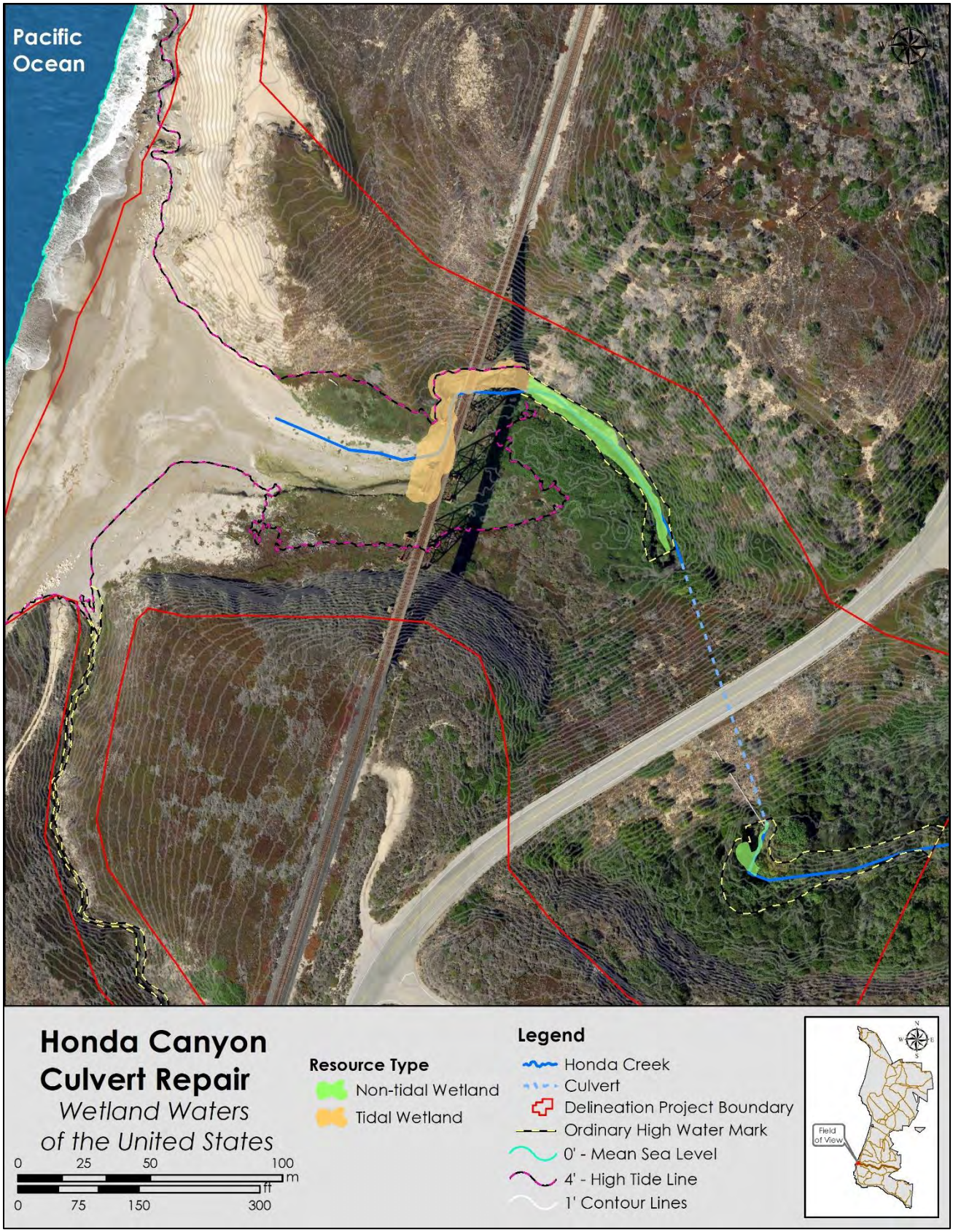

Figure 5-8. Wetland waters of the United States mapped in Honda Canyon.

5.6 Potential Waters of the State

Waters of the state include all WOUS as well as additional categories such as unvegetated sites so long as they have wetland hydrology and hydric soils, and riparian zones. Thus, all of the areas below the HTL and all of the riparian vegetation types qualify as waters of the state. Some areas qualify as waters of the state by virtue of being below the OHWM or HTL *as well as* because they satisfy the definition of wetland waters of the state, for instance the unvegetated stream channel upstream of the culvert intake. This channel qualifies as WOUS because it is within the OHWM, and also qualifies as a state wetland because it has wetland hydrology and hydric soils, but no vegetation in the channel. The ephemeral drainage qualifies as waters of the state. It has a clear bed and banks, which is indicative of surface flow and thus satisfies the state definition.

The total area of waters of the state is 4.65 ac (1.88 ha) (Table 5-3, Figure 5-9). The large areas of dense arroyo willow on the south side of Honda Creek below the culverts and surrounding it above the culverts qualifies as riparian habitat. In addition, the small areas of coastal salt marsh characterized primarily by fleshy jaumea (*Jaumea carnosa*), alkali heath (*Frankenia salina*), and saltgrass (*Distichlis spicata*) surrounding the open water, foredune and coastal strand in the estuary indicate a connection to the estuary's hydrology and tidal influence. These vegetation types satisfy the waters of the state definition of "lands which contain habitat which grows close to and which depends on soil moisture from a nearby freshwater source".

Table 5-4. Results of surveys for waters of the state.

Vegetation Type	Resource Type	Acres
Waters of the State Bounded by the Ordinary High Water Mark, Delineated as Adjacent Wetlands, Or Riparian Zone		
Coastal and Valley Freshwater Marsh	Non-Tidal Wetland	0.13
Central Coastal Arroyo Willow Riparian Forest and Scrub	Riparian Zone	1.69
Acacia	Stream Channel	0.03
Central Coastal Arroyo Willow Riparian Forest and Scrub		0.24
Open Water	Stream Channel/Non-Tidal Wetland	0.07
Central Coastal Scrub / Iceplant	Stream Channel	0.12
	Total	*2.29*
Waters of the State Bounded by the High Tide Line, Delineated as Adjacent Wetlands, Or Riparian Zone		
Central Coastal Scrub	Estuary	<0.01
Central Coastal Scrub / Iceplant		0.14
Central Coastal Arroyo Willow Riparian Forest and Scrub		0.11
Acacia		<0.01
Coastal Salt Marsh		0.65
Coastal Strand		0.70
Foredune		<0.01
Open Water	Estuary/Tidal Wetland	0.42
Coastal Salt Marsh	Riparian Zone	0.08
Coastal and Valley Freshwater Marsh	Tidal Wetland	0.20
Open Water		0.05
	Total	*2.36*
	Grand Total	***4.65***

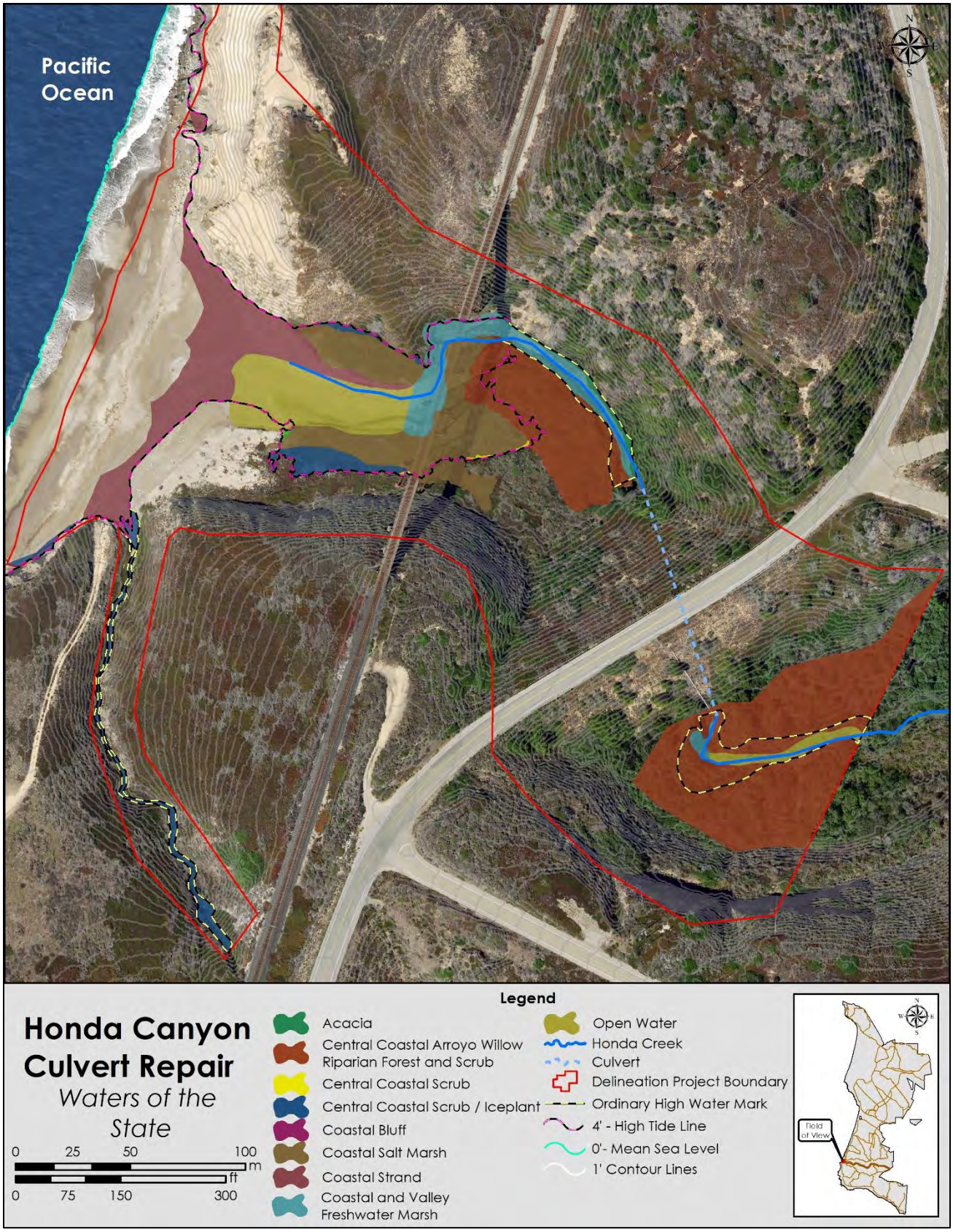

Figure 5-9. Waters of the state mapped in Honda Canyon.

6.0 Analysis of Impacts

The design for the culvert repair utilizes existing roads and laydown areas where possible, but does require construction of temporary roads and clearing areas for staging and turnaround sites within the wetland delineation project area as well as disturbances at the inlet end of the culverts including damming the stream to divert water during repairs (Figures 6-1 and 6-2). Portions of the impacted area are outside of the jurisdictional waters areas, but much of the temporary access road bisects WOUS, waters of the state, and/or jurisdictional wetlands. A total of 0.44 ac (0.18 ha) of WOUS will be affected by these construction activities (Table 6-1). In addition, the project will result in a total of 0.71 ac (0.29 ha) of impacts to waters of the state (Table 6-1). Affected areas include both wetlands and non-wetland jurisdictional waters including non-tidal wetlands, stream channel, and riparian zone resources.

Construction activities will alter vegetation and soils. Vegetation will be cleared for the access road and at the repair site at the inlet end of the culvert, which will include removing mature willows in Central Coastal Arroyo Willow Riparian Forest and Scrub and wetland vegetation in Coastal and Valley Freshwater Marsh. Laydown areas and portions of the road will be established in Coastal Strand and Coastal Salt Marsh vegetation, requiring clearing and likely some degree of soil compaction from construction and use of the route. However, these activities are temporary impacts that will be restored.

These activities are unlikely to alter channel morphology on the site, and are described as temporary impacts in the project design. Therefore, the post-project extents of WOUS and waters of the state are not expected to change as a result of the project activities.

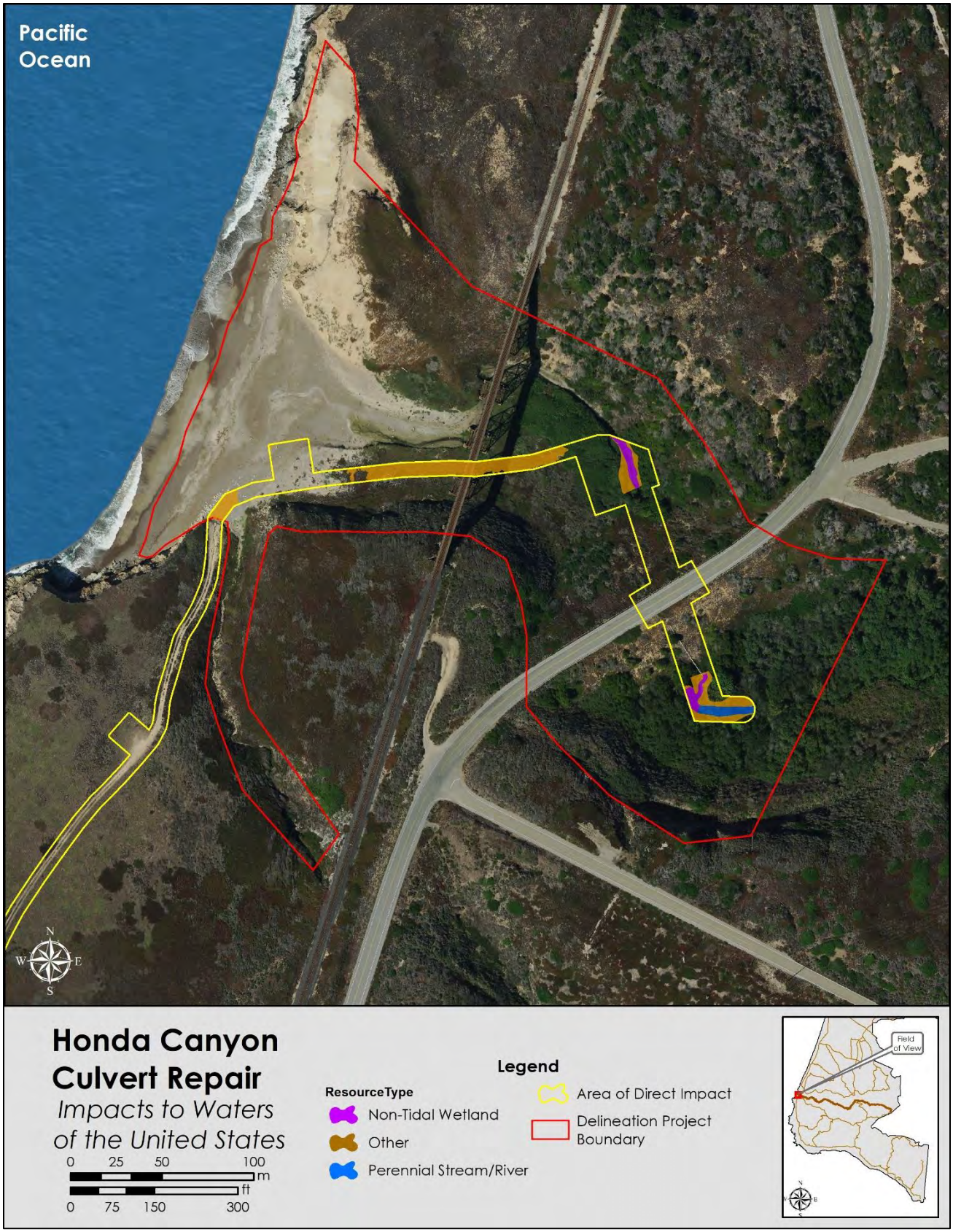

Figure 6-1. Impacts to waters of the United States from repair activities.

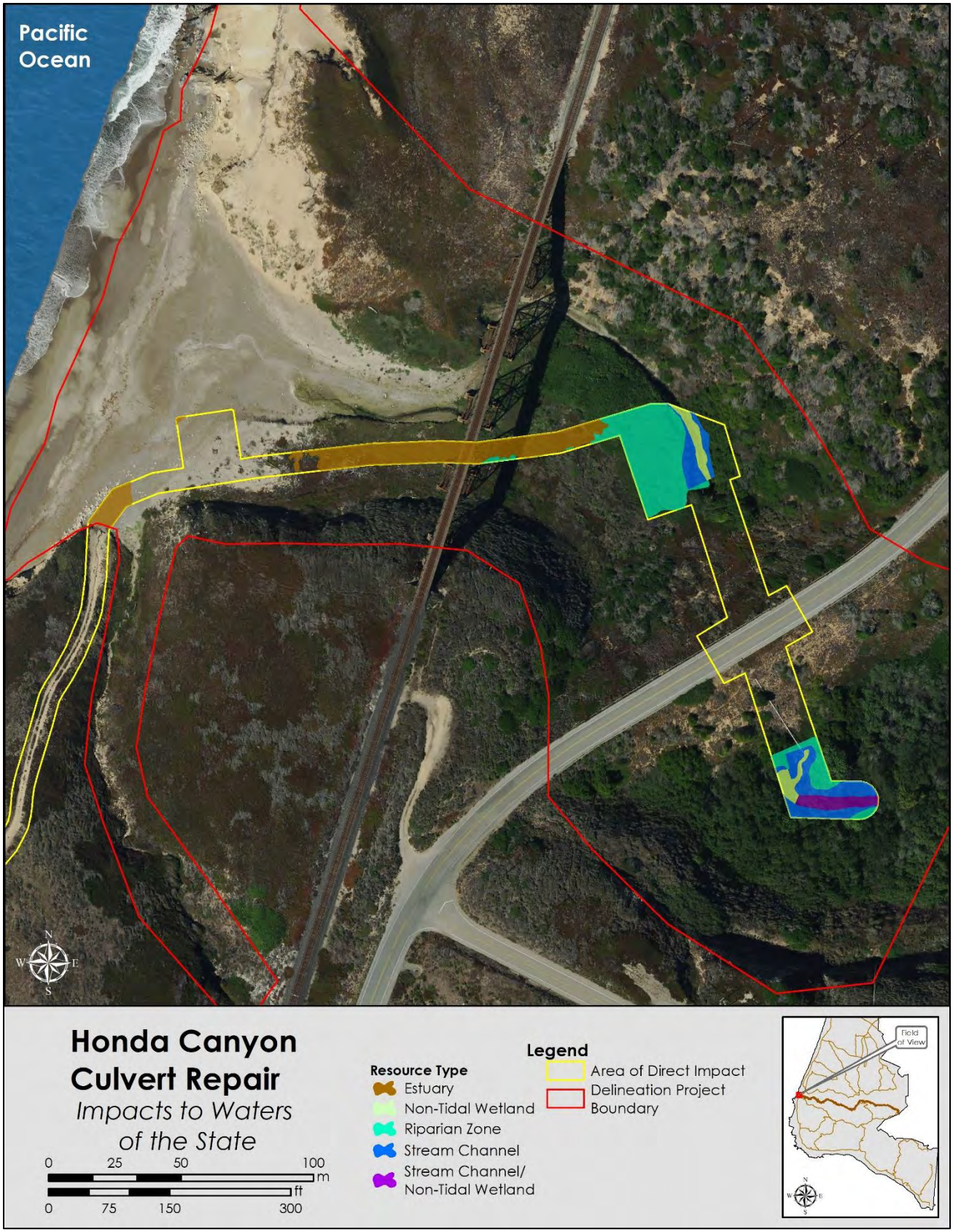

Figure 6-2. Impacts to waters of the state from repair activities.

Table 6-1. Area of impacts to waters of the United States.

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)
Non-Tidal Wetland	1,792.14	0.04
Other	16,208.12	0.37
Perennial Stream/River	1,376.51	0.03
Total	***19,376.76***	***0.44***

Table 6-2. Area of impacts to waters of the state (which include waters of the United States as well as additional waters).

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)
Estuary	10,742.37	0.25
Non-Tidal Wetland	1,792.14	0.04
Riparian Zone	11,734.64	0.27
Stream Channel	5,474.02	0.13
Stream Channel/Non-Tidal	1,376.51	0.03
Total	***31,119.68***	***0.71***

7.0 References

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Appendix A: Geographic Information System Files

Delivered as separate ESRI-format file geodatabase per VAFB geospatial data delivery standards.

Appendix B: US Army Corps of Engineers Data Forms

Included as separate PDF format file.

Appendix C: Photographs Collected During Field Work.

Included as separate CD delivery.

Appendix D. List of all plant taxa observed during the survey.

Table D-1. List of Obligate, Facultative Wetland, and Facultative plant species observed during the survey. Table is organized based on wetland indicator status. Wetland indicator status determined using the National Wetland Plant List (Lichvar et al. 2016) except where noted.

Family	Scientific Name	Common Name
Obligate Wetland Species		
Asteraceae	Cotula coronopifolia*	brass buttons
	Jaumea carnosa	fleshy jaumea
Cyperaceae	Bolboschoenus maritimus	alkali bulrush
	Schoenoplectus acutus	roundstem tule
	Schoenoplectus americanus	american three square
Fabaceae	Hoita orbicularis	hoita
Phrymaceae	Mimulus guttatus	common monkeyflower
Plantaginaceae	Veronica anagallis-aquatica*	water speedwell
Rosaceae	Potentilla anserina	coastal silverleaf
Typhaceae	Typha latifolia	cattail
Facultative Wetland Species		
Apiaceae	Apium graveolens*†	celery
	Conium maculatum*	poison hemlock
Asteraceae	Baccharis glutinosa	marsh baccharis
Equisetaceae	Equisetum hyemale	common scouring rush
Frankeniaceae	Frankenia salina	alkali heath
Cyperaceae	Juncus ensifolius	sword leaved rush
Poaceae	Polypogon monspeliensis*	rabbitfoot grass
Salicaceae	Salix lasiolepis	arroyo willow
Facultative Species		
Asteraceae	Artemisia douglasiana	mugwort
	Picris echioides*††	bristly ox tongue
	Pseudognaphalium luteoalbum*	cudweed
	Sonchus asper*	prickly sow thistle
Brassicaceae	Cakile maritima*	sea rocket
Caryophyllaceae	Spergularia macrotheca	sand spurry
Chenopodiaceae	Atriplex leucophylla	beach saltbush
Myrsinaceae	Lysimachia arvensis*	scarlet pimpernel
Plantaginaceae	Plantago coronopus*	cutleaf plantain
Poaceae	Distichlis spicata	salt grass
Polygonaceae	Rumex crispus*	curly dock
Ranunculaceae	Clematis ligusticifolia	virgin's bower
	Thalictrum fendleri	Fendler's meadow-rue
Rosaceae	Rubus ursinus	blackberry
Scrophulariaceae	Scrophularia californica	california figwort
Tamaricaceae	Tamarix ramosissima*	tamarisk
Urticaceae	Urtica dioica ssp. holosericea	stinging nettle

*Non-native taxon

†Considered FACW per USFWS 1997 "National List of Vascular Plant Species that Occur in Wetlands"

††Considered FAC per USFWS 1997 "National List of Vascular Plant Species that Occur in Wetlands"

Table D-2. List of Facultative Upland and Upland species observed during the survey. Table is organized based on wetland indicator status. Wetland indicator status determined using the National Wetland Plant List (Lichvar et al. 2016) unless noted.

Family	Scientific Name	Common Name
Facultative Upland Species		
Aizoaceae	Carpobrotus chilensis*	ice plant
	Mesembryanthemum crystallinum*	crystalline ice plant
Anacardiaceae	Toxicodendron diversilobum	poison oak
Caprifoliaceae	Sambucus nigra ssp. caerulea	elderberry
Fabaceae	Medicago polymorpha*	bur clover
Poaceae	Cortaderia jubata*	jubata grass
Upland Species		
Apiaceae	Foeniculum vulgare*	fennel
Asteraceae	Ambrosia chamissonis	beach bursage
	Artemisia californica	california sagebrush
	Baccharis pilularis	coyote brush
	Coreopsis gigantea	giant coreopsis
	Eriophyllum staechadifolium	coastal golden yarrow
	Isocoma menziesii	coastal goldenbush
	Pseudognaphalium californicum	california everlasting
	Sonchus oleraceus*	common sow thistle
Brassicaceae	Brassica nigra*	black mustard
Chenopodiaceae	Atriplex californica	coastal saltbush
	Chenopodium californicum	california goosefoot
Fabaceae	Acacia longifolia*	long-leafed acacia
	Acmispon glaber	deerweed
	Astragalus nuttallii	locoweed
Grossulariaceae	Ribes malvaceum	chaparral current
Onagraceae	Camissoniopsis cheiranthifolia	beach evening primrose
Oxalidaceae	Oxalis pes-caprae*	bermuda buttercup
Polygonaceae	Eriogonum parvifolium	seacliff buckwheat
Salicaceae	Populus trichocarpa	black cottonwood

*Non-native taxon

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FORMAT PAGE

APPENDIX G. California Coastal Commission Consultation

FORMAT PAGE

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SAN FRANCISCO, CA 94105-2421
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March 18, 2021

Beatrice L Kephart
Chief, Installation Management Flight
Department of the Air Force
30 CES/CEI
1028 Iceland Avenue
Vandenberg AFB CA 93437-6010

Subject: Negative Determination **ND-0002-21** (Honda Creek Culvert Repair, Vandenberg Air Force Base, Santa Barbara County)

Dear Ms. Kephart:

The Coastal Commission staff has received the above-referenced negative determination from the Department of the Air Force (Air Force) for culverts repair and corrosion prevention where Coast Road crosses Honda Creek at Vandenberg Air Force Base (Vandenberg), Santa Barbara County. The Air Force describes Coast Road as "a major, paved artery connecting sites along the western edge of VAFB on South Base", supporting the missions and operations of the Air Force at Vandenberg. Coast Road was built over two 13-foot (ft) diameter, 330 ft long culverts that are prone to siltation and accumulation of debris. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and collapse is a concern. Only one culvert currently allows for water flow; the other culvert is blocked with silt. The project goals are to repair these existing culverts and to add corrosion prevention to them, thus maintaining the transportation connection along Coast Road.

The Air Force will achieve project goals through the following activities: installation of 11 ft diameter high-density polyurethane liners inside the existing culverts to prevent further corrosion and collapse; construction of an approximately 24 ft wide and 910 linear ft (LF) in length temporary route to provide for construction access; construction of a 4,340 square foot (SF) temporary staging/turnaround area near the culvert outlet and a 2,500 SF turnaround area along an existing unpaved access road; and manually removing 0.5 acres of vegetation, primarily Arroyo willow (*Salix lasiolepis*) to ground level.

Prior to culvert repair activities, the Air Force will dewater each culvert separately by diverting the active creek channel through one of the two culverts. Temporary diversion dam structures would be installed under the supervision of a biological monitor, and temporarily impact 20 LF of Honda Creek. Concrete inlet and outlet structures would also be installed to prevent erosion immediately around the inlet and outlet of each culvert, potentially permanently impacting a maximum of 0.5 acres of vegetation, primarily Arroyo willow. To access the outlet side of the culverts, the Air Force would construct a temporary access road using clean compacted fill soil and shale cover. Approximately 4.5 acres of

primarily iceplant and acacia would be temporarily impacted by construction of temporary access roads, turn arounds, and staging areas.

As described in the draft Environmental Assessment (EA) for the project, the Air Force will implement environmental protection measures to avoid or minimize potential adverse effects to environmental resources during project implementation. USFWS-approved biological monitors will be present at all times during project activities and will survey for special-status species at the start of every workday. Any native wildlife species encountered would be moved to the nearest suitable habitat to avoid direct impacts. Additionally, the Air Force has designed the project to limit disturbance in the creek and will install erosion control materials such as Durabase rubber mats, silt fences, fiber rolls, and erosion blankets.

Following repair activities, equipment and machinery will be removed and restoration of impacted areas (1.15 acres) will commence. To the extent possible, the site contours and habitat types would be restored to original conditions. All material will be taken from a local borrow pit and transported to the site. Native herbaceous vegetation would be replanted to restore all temporarily disturbed areas.

The Air Force describes the Honda Creek drainage as being heavily impacted by invasive vegetation that damages the natural creek flows and creek ecosystem, including special-status species. Approximately 0.40 acres of native habitat at two sites in the estuary is impacted with iceplant that have formed large mats and is spreading over native vegetation. Approximately 4.51 acres of Honda Creek is surrounded by eucalyptus trees which are stifling the growth of native understory vegetation and negatively impacting the creek's hydrology. To mitigate for permanent impacts to wetland and riparian vegetation, the Air Force proposes to treat 0.40 acres of iceplant in the Honda estuary and 4.51 acres of Eucalyptus trees approximately 0.95 miles upstream of the project using herbicides in accordance with the VAFB Integrated Pest Management Plan. This is part of an ongoing larger effort to enhance portions of Honda Creek through invasive removal. For the past decade, the Air Force has conducted similar invasive removal projects with successful reemergence of native wetland riparian vegetation types post-removal. As summarized in the Compensatory Mitigation and Monitoring Plan, additional maintenance and monitoring for these areas will continue for 5 years or until removal is accomplished.

Honda Creek provides habitat for the California red-legged frog (*Rana draytonii*) which is listed under the federal Endangered Species Act. The Air Force submitted a project-specific prenotification to the US Fish and Wildlife Service (USFWS) under the Programmatic Biological Opinion (PBO). The prenotification was approved by the USFWS on September 16, 2020. As described in the draft EA and USFWS Biological Opinion for the project, species-specific minimization and avoidance measures would be implemented to ensure potential adverse effects would be less than significant and would not affect California red-legged frog populations. These measures include: capturing and relocating all individuals to suitable sites within the Honda Creek watershed prior to construction activities, limiting work to daytime hours, implementing a Spill Prevention Plan, and the implementing the USFWS' Declining Amphibian Population Task Force's Code of Practice to prevent the spread of disease during relocations. Commission staff agrees that these measures are adequate to protect these species.

According to the draft EA, there are no adverse impacts expected to cultural resources due to project activities. The State Historic Preservation Officer did not find any adverse effect to cultural resources. Project activities with the potential to disturb cultural resources would be limited to previously disturbed areas such as access roads and parking lots. Previous studies conducted in the areas of direct impact did not find any cultural resources. In the unlikely event that cultural resources are discovered during project-related ground-disturbing activities, work will be halted until the significance of the find is assessed by a qualified archaeologist and the VAFB Integrated Cultural Resources Management Plan will be implemented. Recommendations for appropriate treatment of the discovery will be developed in consultation with the VAFB cultural resources manager and a Native American representative.

In conclusion, the Coastal Commission staff **agrees** that the proposed project would not adversely affect coastal zone resources. We therefore **concur** with your negative determination made pursuant to 15 CFR Section 930.35 of the NOAA implementing regulations. Please contact Alexis Barrera of the Commission staff at alexis.barrera@coastal.ca.gov if you have any questions regarding this matter.

Sincerely,

Alexis Barrera

(For) JOHN AINSWORTH
Executive Director

cc: CCC - South Central District

FORMAT PAGE

APPENDIX H. Conceptual Mitigation Plan for Honda Culvert Repair at Vandenberg Air Force Base, California

FORMAT PAGE

Conceptual Mitigation Plan for Honda Culvert Repair at Vandenberg Air Force Base, California

18 February 2021

Prepared for

30th Space Wing, Installation Management Flight, Environmental Conservation
30 CES/CEIEA
1028 Iceland Avenue
Vandenberg Air Force Base, CA 93437-6010

Prepared by

ManTech SRS Technologies, Inc.
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300 North G Street
Lompoc, CA 93436

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Acronyms and Abbreviations

ac	acres
ft	feet or foot
ha	hectare
m	meter
m^2	square meter
SF	square feet
US	United States
USAF	United States Air Force
VAFB, Base	Vandenberg Air Force Base
WOUS	waters of the United States

1.0 Introduction

Vandenberg Air Force Base (VAFB or Base) is located on the south-central coast of California, approximately halfway between San Diego and San Francisco (Figure 1-1). Base covers approximately 99,000 acres (ac; 40,063 hectares [ha]) in western Santa Barbara County approximately 6.0 miles (mi; 9.7 kilometer [km]) from the city of Lompoc (United States [US] Air Force [USAF] 2015). VAFB is headquarters for the 30th Space Wing. The primary mission of VAFB is to launch and track satellites, test and evaluate America's intercontinental ballistic missile systems, and support aircraft operations in the Western Range. Much of VAFB is open space set aside as security or safety buffer zones for space launch activities, providing large tracts of native habitat and natural resources that require management. The topography of VAFB is varied; including hills, mountains, terraces, floodplains, mesas, canyons, beaches, and rocky headlands. VAFB occurs in a transitional ecological region that includes the northern and southern distributional limits for many plant and animal species.

A transportation network of paved and unpaved roads and trails connects operations across the base and this network requires ongoing maintenance. For instance, roads that cross waterways via culverts may require repair or cleaning to maintain flow and prevent erosion of the roadbed. Coast Road is a major, paved artery connecting sites along the western edge of VAFB on South Base. Where it crosses Honda Canyon, two culverts convey water under the road and into the small estuary at the mouth of Honda Creek (aka Cañada Honda Creek). These culverts have collected silt and flood debris and require clearing and repairs to the lining to prevent further degradation. These repair activities will result in impacts to waters of the United States (WOUS) and waters of the state (MSRS 2021). To mitigate these impacts to protected waters, VAFB will restore habitat within the Honda Canyon watershed at an appropriate mitigation ratio. This plan details the Proposed Action, the impacts likely to occur, and the mitigation proposed.

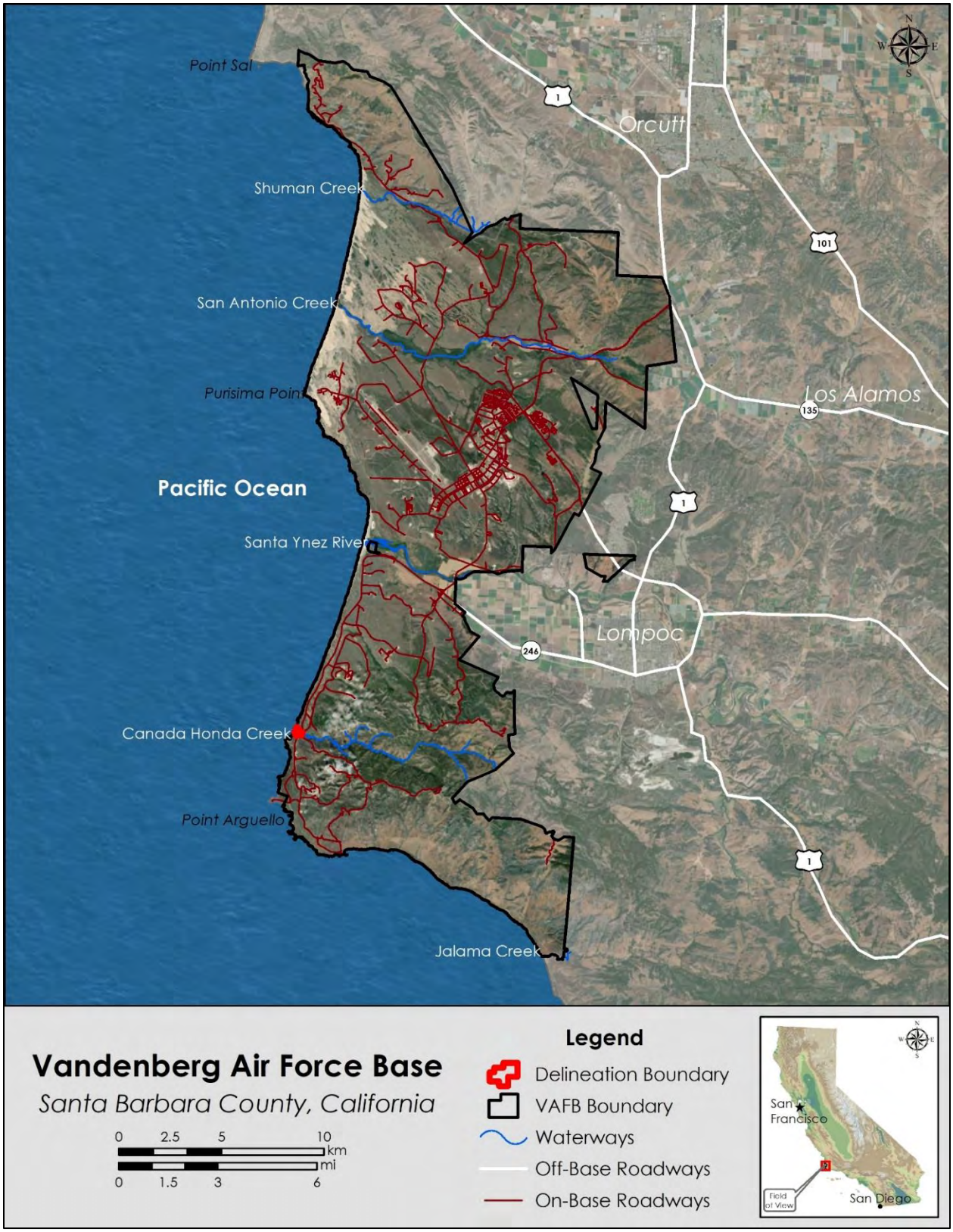

Figure 1-1. Honda Canyon culvert repair project regional location.

2.0 Project Overview

The Proposed Action consists of implementing Honda Canyon culvert repair and erosion prevention on south VAFB. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and collapse is a concern. VAFB would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot (ft; 3 meter [m]) diameter High Density Polyurethane liners would be grouted in place inside the existing culverts. If necessary, permanent concrete repairs would be performed to replace scoured areas immediately around the entrance or outlets of the culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, VAFB would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas (Figure 2-1). VAFB proposes clearing and grubbing vegetation for a temporary access route along the beach to the culverts. It is anticipated that this project would be considered under Nationwide Permit 3, Maintenance.

The predesign plan for water diversion would be to place exclusionary netting upstream and downstream of the Action Area, in coordination with biological monitor recommendations, to allow for temporary diversion dam structures to be installed, which would divert water flow into one of the two culverts, thus allowing work to occur in the dry culvert without impacts to sensitive species and water quality. The dams would be watertight and a temporary bypass pipe would convey stream flow through the culvert where work is not occurring and then downstream past the project area. The inlet bypass pipe would be sealed to the dam in a manner to create a watertight seal, such that leakage of water into the project site would be minimal. In prior similar projects, this has been accomplished with a concrete-collared pipe seated into the center of the dam. The upstream diversion dam would be installed up to approximately 100 ft (30.5 m) upstream and would temporarily impact approximately 2,800 square feet (SF; 260 square meters [m^2]) of Honda Creek and the associated riparian area. Any remaining water contained within the new diversion zone would be pumped to a water truck or to an infiltration pit, as needed to maintain safe working conditions and prevent any discharge back into the creek. After dewatering and repair are completed in one culvert, the process would be reversed for the remaining culvert. After repair of both culverts is completed, the temporary diversion dams would be removed and natural flow restored to the culverts, as coordinated with the biological monitor.

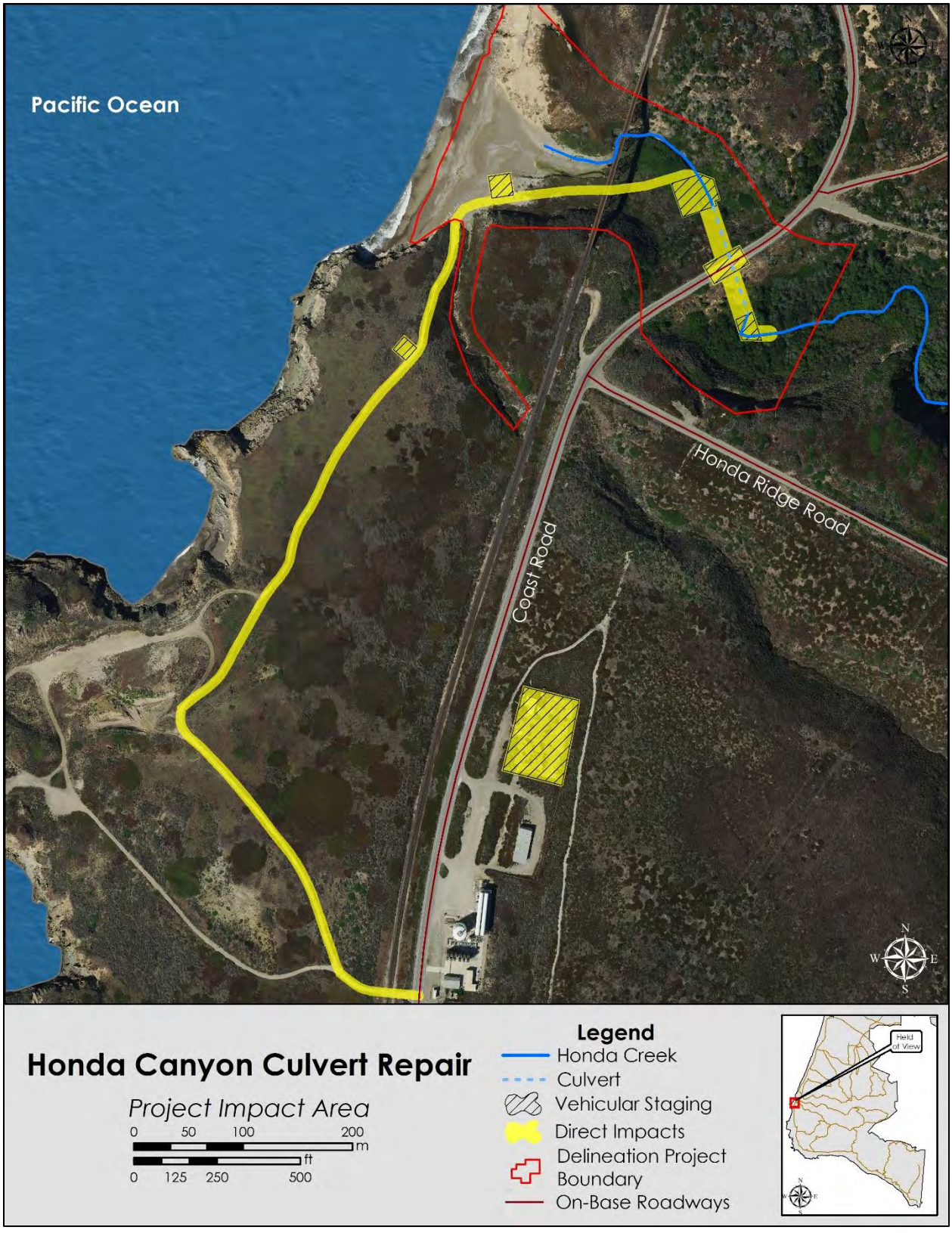

Figure 2-1. Honda Creek culvert repair project map.

3.0 Impacts to Jurisdictional Waters

Impacts to WOUS and waters of the state will consist of installation of a temporary access road that passes along the beach and into the main channel below the culverts, and disturbance at the inlet end of the culverts which may consist of channeling flow through one culvert at a time and staging of personnel and material for positioning and grouting the liners. Inlet activities may include damming and dewatering portions of Honda Creek and foot traffic. Permanent impacts may occur should scoured areas require maintenance and addition of cement.

3.1. Impacts to Waters of the U.S.

The temporary access road passes through marine intertidal unconsolidated shore (beach), non-wetland WOUS below the high tide line and ordinary high-water mark and palustrine emergent wetland. The inlet end disturbed area is in palustrine emergent wetland and non-wetland WOUS. A total of 0.44 ac of these resources will be crossed by the access road or are within the inlet end disturbance area (Table 3-1; Figure 3-1). Based on the U.S. Army Corps of Engineers compensatory mitigation calculation worksheet (See Attachment) and assuming only temporary impacts, the ratio of mitigation to impact is 3.25:1. With a total impact area of 0.44 ac, the current estimated compensatory mitigation area required is 1.43 ac. However, should permanent impacts result from the repair activities, the ratio of mitigation to impact may change, requiring an adjustment of the final compensatory mitigation area.

Table 3-1. Waters of the U.S. impacted by culvert repair activities.

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)	Length of Temporary Impacts (linear feet)
Non-Tidal Wetland	1,792.14	0.04	171
Other	16,208.12	0.37	737
Perennial Stream/River	1,376.51	0.03	100
Total	***19,376.76***	***0.44***	***1,008***

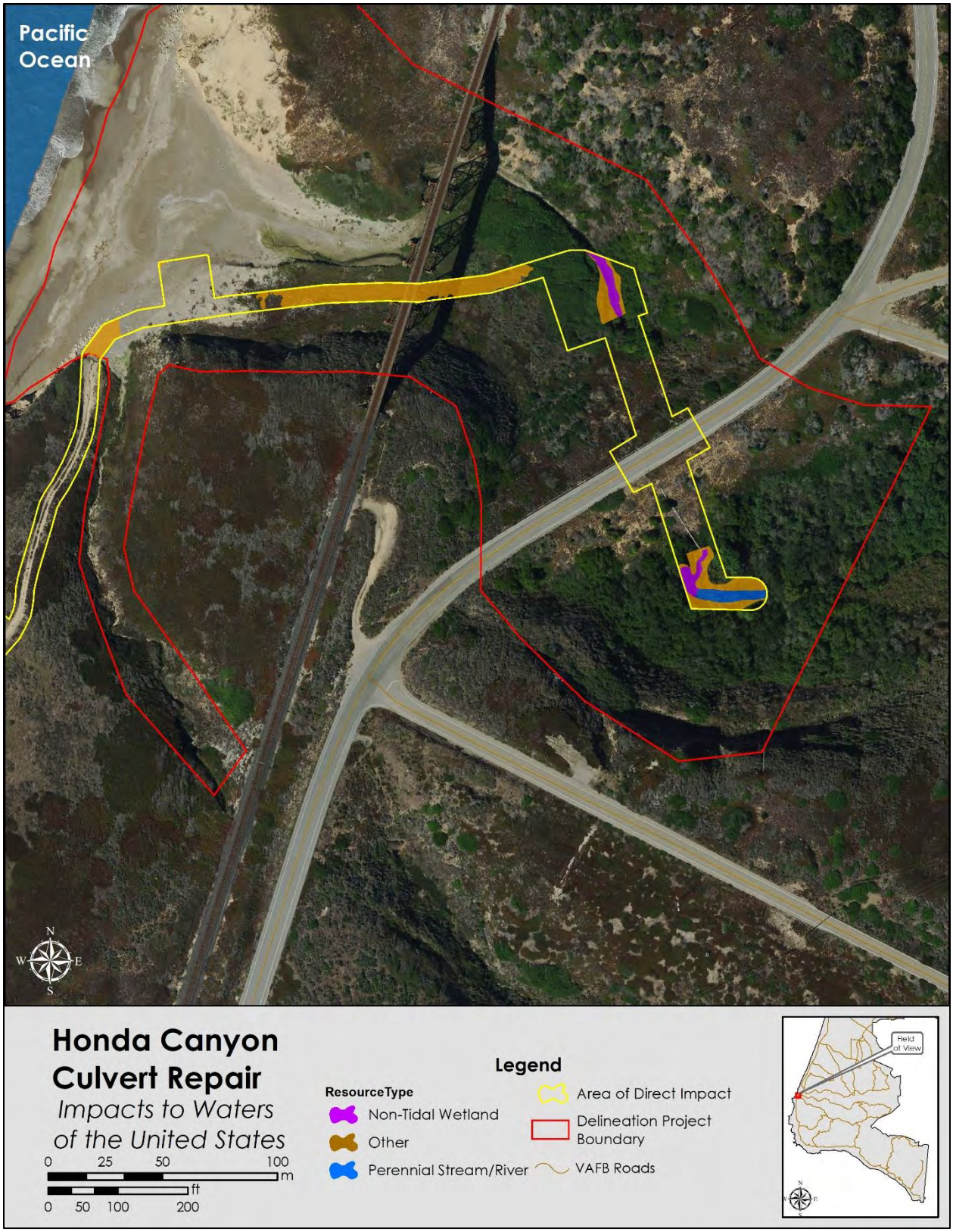

Figure 3-1. Waters of the United States impacted by culvert repair activities.

3.2. Impacts to Waters of the State

Impacts to waters of the state would be similar to impacts to WOUS, though slightly greater in extent because of the larger area of state jurisdiction within the project footprint. In addition to the WOUS that are also state jurisdictional waters that the temporary access road passes through, it will also pass through waters of the state in the form of Riparian Zone. The total area of disturbed waters of the state is 0.71 ac (Table 3-2; Figure 3-2). Currently, only temporary disturbance is planned, but should the repairs require permanent disturbance, total area will be divided appropriately to reflect actual temporary and permanent effects.

Table 3-2. Waters of the state impacted by culvert repair activities.

Resource Type	Area of Temporary Impacts (square feet)	Area of Temporary Impacts (acres)	Length of Temporary Impacts (linear feet)
Estuary	10,742.37	0.25	455
Non-Tidal Wetland	1,792.14	0.04	168
Riparian Zone	11,734.64	0.27	373
Stream Channel	5,474.02	0.13	266
Stream Channel/ Non-Tidal Wetland	1,376.51	0.03	101
Total	***31,119.68***	***0.71***	***1,363***

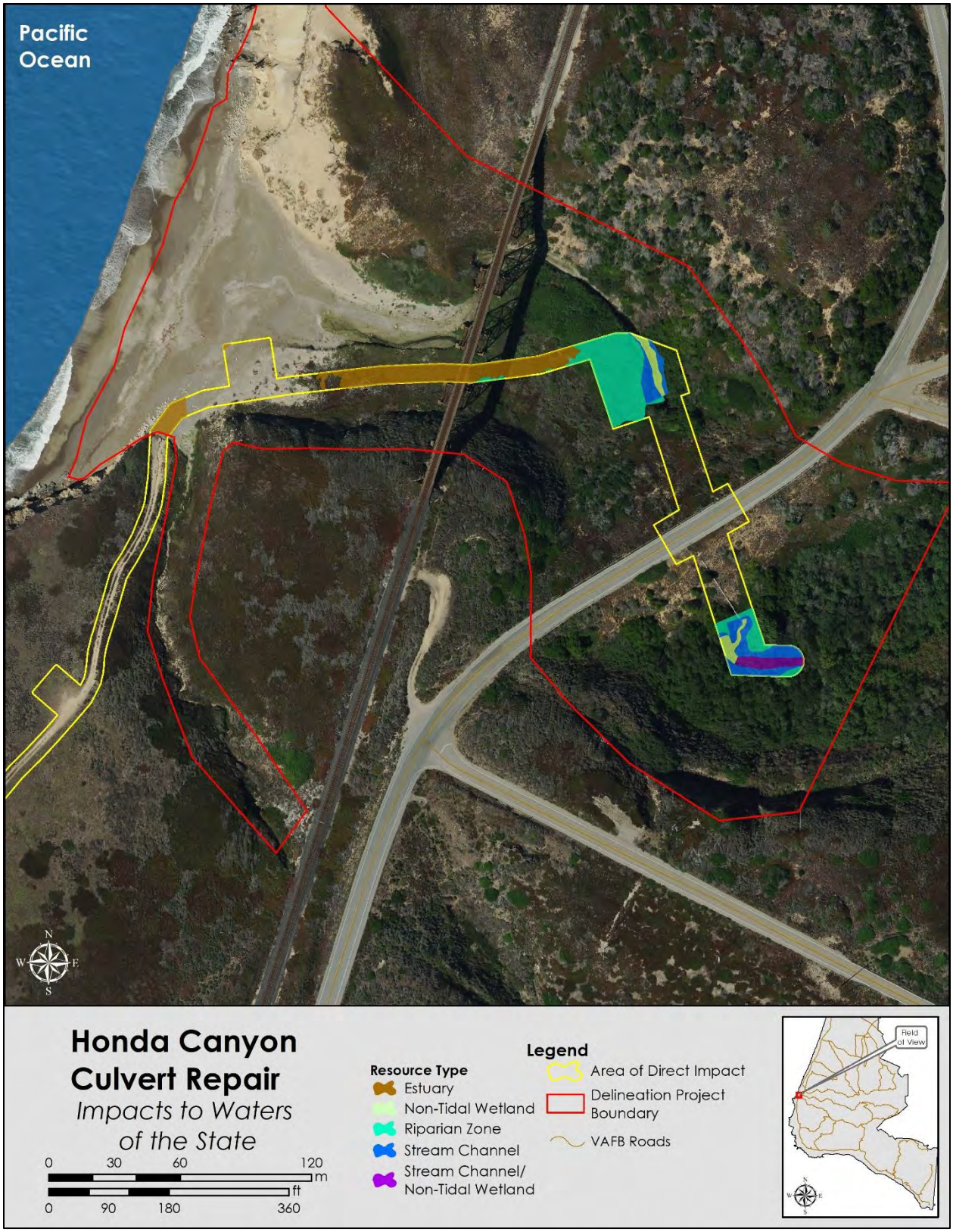

Figure 3-2. Waters of the state impacted by culvert repair activities.

4.0 Proposed Mitigation

To mitigate for impacts to WOUS and waters of the state, 0.71 ac of WOUS and 0.44 ac of waters of the state will be re-established through restoration of the temporary disturbances including the access road and the work site at the inlet end. However, should permanent impacts result, this proposed mitigation may be adjusted to restore adequate area. Under the current anticipated temporary impacts, a total of 1.43 ac of restoration is required to satisfy a mitigation ratio of 3.25:1. We propose that the remaining mitigation be accomplished through a combination of iceplant (*Carpobrotus* spp.) treatment in the Honda estuary (0.40 ac available) and treatment of Eucalyptus (*Eucalyptus* sp.) trees upstream in Honda Creek (4.51 ac available; Figure 4-1).

In total, 0.40 ac of habitat infested with iceplant is found both in large mats and interspersed throughout native habitat in the estuary (Figure 4-1). Iceplant would be treated with a glyphosate herbicide to enhance and improve native habitat function. An initial treatment and two follow-up maintenance treatments would be performed during the first year of mitigation.

In addition to treating iceplant in the estuary, a 4.51-ac stand of eucalyptus found in Honda Creek approximately 0.95 mi (1.53 km) upstream of the project area would be treated (Figure 4-1). Eucalyptus would be treated with herbicides in one of the following ways: basal bark treatment, girdle and treat, or "drill and fill". Small and medium trees would be treated with a basal bark application of Garlon 4 Ultra®. Workers would girdle larger trees and apply imazapyr herbicide to the wound or perform a "drill and fill" treatment, by which a hole is bored into the tree and filled with imazapyr herbicide. Under either treatment method, trees would be left in place to decompose so that ground disturbance would be minimized, allowing native understory to develop with tall dead snags available for wildlife nesting and roosting habitat. On Santa Cruz Island, eucalyptus understory became dominated by fruit-bearing hardwood perennials such as cherry, toyon, and coffee berry when adult trees and new eucalyptus seedlings were controlled (M. Ball, pers. obs.). This is because birds using the dead snags drop native seeds into a shaded environment where they can thrive. Eucalyptus removal is also expected to enhance the watershed by reducing draw on groundwater, as has been demonstrated in similar climates where Eucalyptus have been shown to impact hydrology (Scott & Lesch 1997; Zhang et al. 1999; Dye & Versfeld 2007).

Additional maintenance treatments and monitoring requirements for these areas would be described in the Compensatory Mitigation and Monitoring Plan (CMMP), along with environmental protection measures to minimize the risk of negative impacts during herbicide applications.

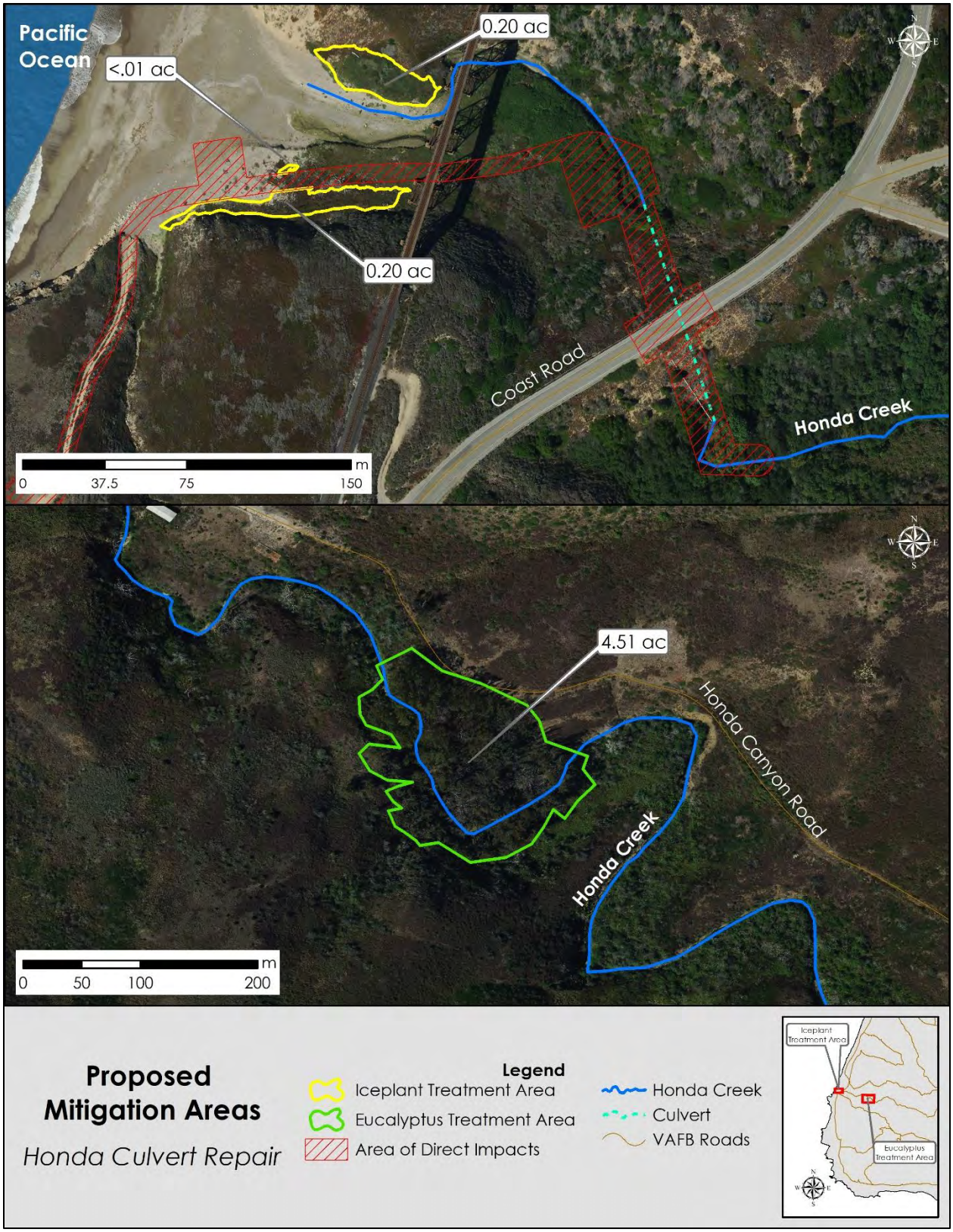

Figure 4-1. Proposed mitigation areas.

Literature Cited

D. F. Scott, and W. Lesch. 1997. Streamflow responses to afforestation with *Eucalyptus grandis* and *Pinus patula* and to felling in the Mokobulaan experimental catchments, South Africa. Journal of Hydrology 199 (3-4): 360–377.

L. Zhang, W. R. Dawes, and G. R. Walker. 1999. Predicting the effect of vegetation changes on catchment average water balance. CSIRO Technical Report 99/12, CSIRO, Canberra, Australia.

ManTech SRS Technologies, Inc. [MSRS]. 2021. Assessment of Potential Jurisdictional Waters for Honda Creek Culvert Repair at Vandenberg Air Force Base, California. ManTech SRS Technologies, Inc., Lompoc, California. 40pp.

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FORMAT PAGE

APPENDIX I. Notice of Availability for Public Review, Proof of Delivery/Publication, Comments Received on Final Draft, and Responses

FORMAT PAGE

FINAL DRAFT ENVIORNMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT/FINDING OF NO PRACTICABLE ALTERNATIVE

HONDA CREEK CULVERT REPAIRS AND CORROSION PREVENTATION AT VANDENBERG AIR FORCE BASE, CALIFORNIA

The US Air Force has prepared a Final Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)/Finding on No Practicable Alternative (FONPA) that evaluates the potential environmental impacts of implementing repairs to Honda Canyon culverts for the prevention of corrosion. The Honda Creek culverts are located on Vandenberg Air Force Base (VAFB) in Santa Barbara County, California. The Proposed Action consists of implementing Honda Creek culvert repairs and corrosion prevention at Vandenberg VAFB. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and the Air Force is concerned about pipe and road collapse. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot-diameter high-density polyurethane (HDPE) liners would be grouted in place inside the existing culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, the Air Force would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas. The Air Force proposes clearing and grubbing vegetation for a temporary access route to the culverts. Resources analyzed in this Final Draft EA include air quality, biological resources, cultural resources, earth resources, hazardous materials and waste management, human health and safety (noise), Coastal Zone management, solid waste management, transportation, and water resources. The Final Draft EA concludes that there will be no significant environmental impacts resulting from the Proposed Action.

The Final Draft EA/FONSI/FONPA is available at: http://www.vandenberg.af.mil/ and at the Lompoc Public Library via door side pickup by calling the library at (805) 875-8781, in person at the Santa Maria Public Library, at the Santa Barbara Central Library via Grab N' Go service Wednesday through Saturday by calling the library at (805) 962-7653, and the VAFB Library. The public comment period for this Final Draft EA/FONSI/FONPA will be from 28 March 2021 through 27 April 2021. Comments may be sent to Ms. Tracy Curry, 30 CES/CEI, 1028 Iceland Avenue, Vandenberg AFB, CA 93437-6010, emailed to tracy.curry-bumpass@spaceforce.mil. If you have any questions, please contact Ms. Tracy Curry at (805) 606-2044.

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
30TH SPACE WING

MEMORANDUM FOR ALL INTERESTED GOVERNMENT AGENCIES, PUBLIC OFFICIALS, ORGANIZATIONS, AND INDIVIDUAL PARTIES

FROM: 30 CES/CEI
1028 Iceland Avenue
Vandenberg AFB, CA 93437-6010

SUBJECT: Final Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for Honda Creek Culverts Repair and Corrosion Prevention at Vandenberg Air Force Base (VAFB), California

1. Attached as public and agency notification, to comply with the National Environmental Policy Act of 1969, and the President's Council on Environmental Quality's implementing regulations, is the Final Draft EA and FONSI/FONPA for Honda Creek Culverts Repair and Corrosion Prevention at VAFB, California.

2. This Final Draft EA is available at: http://www.vandenberg.af.mil/ and at the Lompoc Public Library via door side pickup by calling the library at (805) 875-8781, in person at the Santa Maria Public Library, at the Santa Barbara Central Library via Grab N' Go service Wednesday through Saturday by calling the library at (805) 962-7653, and the VAFB Library. The Proposed Action consists of implementing Honda Creek culvert repair and corrosion prevention at VAFB. The culverts have bituminous-coated corrugated metal pipes that are corroded and degraded, and the Air Force is concerned about pipe and road collapse. The Air Force would install lining inside these metal pipes to prevent further corrosion and collapse. Smooth-walled, 11-foot-diameter (3.3 meter [m]) high-density polyurethane liners would be grouted in place inside the existing culverts. The Proposed Action would eliminate Coast Road collapse risk. To install the lining, the Air Force would use existing roads and laydown areas and construct a temporary access route and temporary laydown areas. Resources analyzed in the attached Final Draft EA include air quality, biological resources, cultural resources, earth resources, hazardous materials and waste management, human health and safety (noise), Coastal Zone management, solid waste management, transportation, and water resources. This Final Draft EA concludes that there will be no significant environmental impacts resulting from the Proposed Action.

3. The public comment period for this Final Draft EA/FONSI/FONPA will be from 28 March 2021 through 27 April 2021. Comments may be sent to the above address attention of Ms. Tracy Curry, emailed to tracy.curry-bumpass@spaceforce.mil. If you have any questions, please contact Ms. Tracy Curry at (805) 606-2044.

3/23/2021

X Beatrice L Kephart

Signed by: KEPHART.BEATRICE.LINDA.1166122291

BEATRICE L. KEPHART
Chief, Installation Management Flight

Attachment: Final Draft EA and FONSI/FONPA for Honda Creek Culverts Repair at VAFB, California.

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NOAA - National Marine Fisheries Service
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501 West Ocean Blvd
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California Trout
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