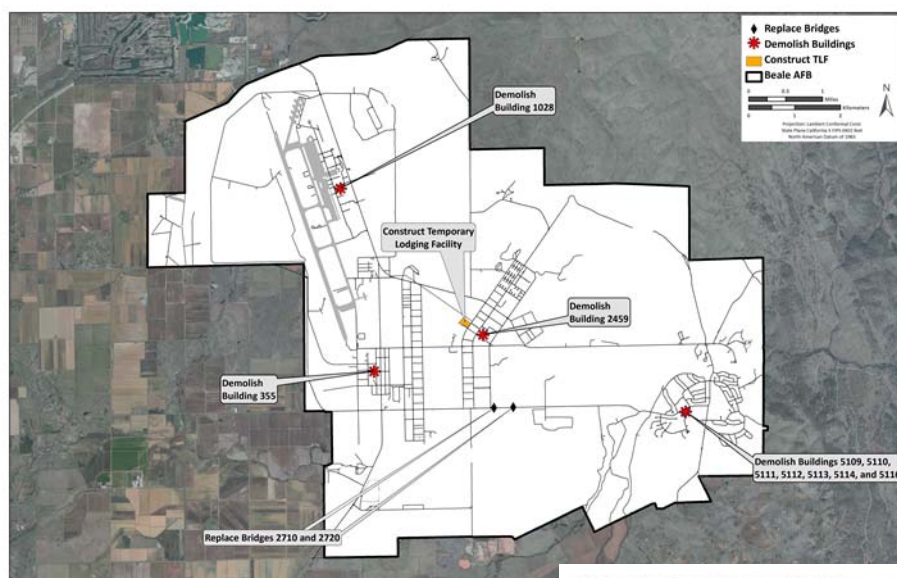


FINAL

ENVIRONMENTAL ASSESSMENT

ADDRESSING

NEW CONSTRUCTION AND DEMOLITION AT BEALE AIR FORCE BASE, CALIFORNIA



APRIL 2014

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)/ FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Environmental Assessment Addressing New Construction and Demolition at Beale Air Force Base, California

Federal actions that potentially involve impacts on the environment must be reviewed in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. The U.S. Air Force (USAF) has completed an Environmental Assessment (EA) to address the potential environmental consequences associated with implementing three projects:

1. Construction of a Temporary Lodging Facility (TLF)
2. Replacement of Bridges 2710 and 2720 on Gavin Mandery Drive
3. Implementation of the Base Demolition Plan

The Proposed Action of implementing these three projects, reasonable alternatives, and the No Action Alternative have been reviewed in accordance with NEPA as implemented by the regulations of the Council on Environmental Quality (CEQ) and USAF regulations in 32 Code of Federal Regulations (CFR) 989, Environmental Impact Analysis Process. The analyses focus on the following environmental resource areas: noise, land use, air quality, geological resources, water resources, biological resources, cultural resources, infrastructure, hazardous materials and waste, and health and safety. Details of the potential environmental consequences can be found in the attached EA.

The Construction of the TLF project would occur in wetlands or vernal pools and therefore, would require a CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE) and issuance of a FONPA with approval from Air Combat Command. Effects on wetlands will not be significant, but there will be minor effects that will be minimized with proper implementation of environmental protection measures. These environmental protection measures include, but are not limited to, flagging the wetland boundary, installing silt fencing, establishing a wetland buffer, and following policies and procedures as detailed in erosion-and-sediment control plans; Storm Water Pollution Prevention Plans; and Spill Prevention, Control, and Countermeasures Plans. Construction of the TLF would also require a Section 401 water quality certification by the California Regional Water Quality Control Board, Central Valley Region. Any necessary agency coordination and required permits will be acquired prior to commencing any ground-breaking activities associated with construction.

Construction of the TLF project would result in direct impacts on 0.007 acres of vernal pool habitat. In August 2013, the USAF initiated formal consultation with the U.S. Fish and Wildlife Service (USFWS) regarding effects on federally-listed species under the ESA from the proposed construction of the TLF project. In December 2013, the USFWS concurred with the determination that the proposed TLF project may affect and is likely to affect vernal pool crustaceans found in the 0.007 acres of vernal pool habitat within the project footprint. A Programmatic Biological Assessment (PBA) and Special Area Management Plan (SAMP) were developed by Beale AFB in July 2009 to cover routine construction and maintenance activities that may affect Federally-listed species, including vernal pool tadpole shrimp and vernal pool fairy shrimp. The USFWS issued a Programmatic Biological Opinion (PBO) for the PBA on 2 October 2012. The Environmental Office has worked with the project proponent to identify a series of avoidance, minimization, and compensation measures to be implemented as part of the Proposed Action in accordance with the PBA and SAMP. These minimization measures would include establishing 0.021 acres of vernal pool habitat preservation. This would ensure no net-loss of federally-listed vernal pool species habitat.

The Replacement of Bridges 2710 and 2720 has the potential to impact tributaries of Hutchinson Creek, which are considered waters of the United States. Therefore, the project would require a CWA Section 404 permit from the USACE. The project would occur in the 100-year floodplain and therefore, require a FONPA with approval from Air Combat Command (ACC). The Proposed Action would not be expected to divert flow or alter floodwater volume or velocity. The project would also require a Section 401 water quality certification by the California Regional Water Quality Control Board, Central Valley Region. In January 2014, the USAF initiated informal consultation with the USFWS regarding potential impacts to special status vernal species habitat found within 250 feet of the project area. On 29 January 2014, the USFWS concurred with the determination that construction of the bridges may affect, but is not likely to adversely affect vernal pool crustaceans found within the 0.36 acres of vernal pool habitat found within the 250-foot buffer; therefore, no compensatory mitigation would be required.

In January 2014, the USAF initiated informal consultation with the USFWS regarding potential impacts to special status vernal species habitat found within 250 feet of the project area for the Base Demolition Plan. On 31 January 2014, the USFWS concurred with the determination that the demolition of Building 355 may affect, but is not likely to adversely affect vernal pool crustaceans found within vernal pool habitat found within the 250-foot buffer; therefore, no compensatory mitigation would be required.

For all three projects under the Proposed Action, all built resources that will be impacted have been surveyed and evaluated as not eligible for the National Register of Historic Places. Additionally, Beale AFB has determined that there would be no adverse effects on archaeological resources. For the proposed TLF project, the California State Historic Preservation Officer (SHPO) concurred with the determination of no historic properties affected in a letter dated 19 September 2013. For the Replacement of Bridges 2710 and 2720, the California SHPO concurred with the determination of no historic properties affected in a letter dated 3 March 2014. For the demolition of Buildings 5109 to 5114 and Building 5116, the California SHPO concurred with the determination of no historic properties affected in a letter dated 3 March 2014. For the demolition of Buildings 355, 1028, and 2594, the California SHPO concurred with the determination of no historic properties affected in a letter dated 6 March 2014.

Finding of No Practicable Alternative. As noted in section 2.3 of the attached EA, four other alternatives were considered for construction of the TLF project; however, they did not meet selection standards discussed in Section 2.1 of the attached EA, were not within the region designated for development by the SAMP and agreed upon by the U.S. Fish and Wildlife Service in the PBO, and would create more impacts to wetlands and threatened and endangered species habitat than the Proposed Action. Therefore, there are no other practicable alternatives for the construction of the TLF project.

The replacement of Bridges 2710 and 2720 involves the replacement of existing infrastructure that is constrained to their current locations. One alternative for the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive was identified and dismissed from further analysis. Beale AFB considered the alternative of repairing Bridges 2710 and 2720; however, both bridges have deteriorated to the point where repair is no longer feasible from an engineering or cost perspective. For these reasons, repair of the bridges was dismissed from further analysis and there are no other practicable alternatives for the project.

Impacts to wetlands and floodplains are reduced to the maximum extent possible through project design and implementation of environmental protection measures; however, these projects have the potential for minor, direct, adverse impacts on wetlands and floodplains. No mitigation measures will be required because no significant impacts would occur.

Finding of No Significant Impact. Based on the information and analysis presented in the EA, incorporated herein by reference, which has been prepared in accordance with the requirements of the NEPA, the CEQ regulations implementing NEPA, USAF implementing regulations as set forth in CFR 989 (EIAP), as amended, and after a review of the agency comments submitted during the 30-day public comment period, I conclude that implementation of the Proposed Action will not result in significant impacts on the quality of the human or natural environment. For these reasons, this FONSI is approved and the preparation of an Environmental Impact Statement is not warranted. This decision has been made after taking into account all submitted information, and considering a full range of practicable alternatives that will meet project requirements and are within the legal authority of the USAF.



ROY, ALAN C. AGUSTIN, Colonel, USAF
Director of Installations and Mission Support
Headquarters Air Combat Command
Joint Base Langley-Eustis, VA

1 MAY 2014

Date

ACRONYMS AND ABBREVIATIONS

μg/m ³	micrograms per cubic meter	EIS	Environmental Impact Statement
9 CES/ CEAN	9th Civil Engineer Squadron/ Environmental Element	EMS	Environmental Management System
9 RW	9th Reconnaissance Wing	EO	Executive Order
ABA	Architectural Barriers Act	EOD	Explosive Ordnance Disposal
ACC	Air Combat Command	ERP	Environmental Restoration Program
ACM	asbestos-containing material	ESA	Endangered Species Act
AFB	Air Force Base	ESCP	Erosion and Sediment Control Plan
AFI	Air Force Instruction	ft ²	square feet
AFOSH	Air Force Occupational Environmental Safety, Fire Protection, and Health	FEMA	Federal Emergency Management Agency
AICUZ	Air Installation Compatible Use Zone	FIRM	Flood Insurance Rate Map
AQCR	Air Quality Control Region	FONPA	Finding of No Practicable Alternative
BGEPA	Bald and Golden Eagle Protection Act	FONSI	Finding of No Significant Impact
BMP	Best Management Practice	FR	Federal Register
CAA	Clean Air Act	FRAQMD	Feather River Air Quality Management District
CAAQS	California Ambient Air Quality Standards	FY	fiscal year
CARB	California Air Resources Board	GHG	greenhouse gas
CEQ	Council on Environmental Quality	HAP	Hazardous Air Pollutant
CEQA	California Environmental Quality Act	HMMP	Hazardous Materials Management Plan
CFR	Code of Federal Regulations	HQ	Headquarters
CNEL	Community Noise Equivalent Level	HWMP	Hazardous Waste Management Plan
CO	carbon monoxide	ICP	Integrated Contingency Plan
CO ₂	carbon dioxide	ICRMP	Integrated Cultural Resources Management Plan
CO ₂ e	carbon dioxide equivalent	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
CRWQCB	California Regional Water Quality Control Board	INRMP	Integrated Natural Resources Management Plan
CWA	Clean Water Act	JPTS	Jet Petroleum-Thermally Stable
dBA	A-weighted decibels	LBP	lead-based paint
DNL	Day-Night Average Sound Level	MBTA	Migratory Bird Treaty Act
DOD	Department of Defense	MCAQMD	Mendocino County Air Quality Management District
DODD	Department of Defense Directive		
EA	Environmental Assessment		

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MFH	Military Family Housing
mg/m ³	milligrams per cubic meter
mgd	million gallons per day
MMRP	Military Munitions Response Program
MSDS	Material Safety Data Sheet
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
O ₃	ozone
OSHA	Occupational Safety and Health Administration
QD	Quantity Distance
P2MAP	Pollution Prevention Management Action Plan
PCB	polychlorinated biphenyl
PBA	Programmatic Biological Assessment
PBO	Programmatic Biological Opinion
pCi/L	picocuries per liter
P.L.	Public Law
PM ₁₀	particulate matter equal to or less than 10 microns in diameter

PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter
POL	petroleum, oils and lubricants
ppb	parts per billion
PPE	Personal Protective Equipment
ppm	parts per million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
SAMP	Special Area Management Plan
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SR	State Route
SSPP	Strategic Sustainability Performance Plan
SWPPP	Storm Water Pollution Prevention Plan
TLF	Temporary Lodging Facility
TPH	total petroleum hydrocarbon
tpy	tons per year
UFC	Unified Facilities Criteria
URBEMIS	Urban Emissions Model
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	volatile organic compound
VQ	Visitor's Quarters

COVER SHEET

FINAL ENVIRONMENTAL ASSESSMENT ADDRESSING NEW CONSTRUCTION AND DEMOLITION AT BEALE AIR FORCE BASE, CALIFORNIA

Responsible Agencies: U.S. Air Force (USAF), Headquarters Air Combat Command (ACC), and Beale Air Force Base (AFB), California.

Affected Location: Beale AFB.

Proposed Action: Implementation of the following three projects at Beale AFB: Construct Temporary Lodging Facility (TLF), Replace Bridges 2710 and 2720 on Gavin Mandery Drive, and Implement the Base Demolition Plan.

Report Designation: Final Environmental Assessment (EA)

Abstract: Beale AFB proposes to implement three projects to meet current and future improvements and maintenance requirements on the installation to support ongoing mission requirements. This EA is being prepared to evaluate the potential environmental impacts of the Proposed Action and alternatives, including the No Action Alternative. For the Construct TLF project, Beale AFB proposes to construct adequate permanent facilities to provide short-term and temporary housing accommodations for military members and their dependents. For the Replace Bridges 2710 and 2720 on Gavin Mandery Drive project, the existing bridges would be demolished and new bridges would be constructed in the same location. Lastly, under the Implement Base Demolition Plan project, Beale AFB proposes to demolish Buildings 355, 1028, 2459, 5109, 5110, 5111, 5112, 5113, 5114, and 5116.

Construction of the TLF project requires consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) because the project is in the vicinity of threatened and endangered species habitat. The construction of the TLF project and the Replacement of Bridges 2710 and 2720 would occur in wetlands or vernal pools and therefore, requires a CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE). Construction of the TLF project and replacement of Bridges 2710 and 2720 requires a Section 401 water quality certification by the CRWQCB, Central Valley Region.

Implementation of the Base Demolition Plan could affect historic properties, including structures, archaeological sites, and other facilities that are eligible for listing on the National Register of Historic Places (NRHP) and would require Section 106 consultation with the State Historic Preservation Officer (SHPO).

EO 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Beale AFB geographic region have been invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes.

The analyses presented in this EA indicate that implementation of the Proposed Action would not result in significant environmental impacts; therefore, a Finding of No Significant Impact (FONSI) has been prepared. Additionally, a Finding of No Practicable Alternative (FONPA) has been prepared for the bridge replacement project because construction is proposed in the 100-year floodplain. A FONPA has also been prepared for the TLF project as construction would occur in wetlands or vernal pools.

Resources considered in the impact analysis in this EA include: noise; land use and planning; air quality and greenhouse gas (GHG) emissions; health and safety; geology and soils; hydrology, water resources, and water quality; biological resources; cultural resources; utilities, service systems, and infrastructure; transportation and traffic; and hazardous materials and wastes.

FINAL

**ENVIRONMENTAL ASSESSMENT
ADDRESSING
NEW CONSTRUCTION AND DEMOLITION
AT
BEALE AIR FORCE BASE, CALIFORNIA**

APRIL 2014

**FINAL ENVIRONMENTAL ASSESSMENT
ADDRESSING NEW CONSTRUCTION AND DEMOLITION
AT
BEALE AIR FORCE BASE, CALIFORNIA**

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1. Purpose of and Need for the Action

This Environmental Assessment (EA) describes Beale Air Force Base's (AFB) proposal to implement three projects at Beale AFB, California. The three projects to be evaluated in this EA are as follows:

- Construct Temporary Lodging Facility (TLF)
- Replace Bridges 2710 and 2720 on Gavin Mandery Drive
- Implement the Base Demolition Plan.

The objective of this EA is to disclose and analyze the potential for environmental impacts from implementation of the proposed projects, which include development projects and long-term, mission-based actions at Beale AFB in accordance with Beale AFB's General Plan (Beale AFB 2008). This EA discusses direct, indirect, permanent, temporary, and cumulative impacts at or near project sites on resource areas including noise; land use and planning; air quality and greenhouse gas (GHG) emissions; health and safety; geology and soils; hydrology, water resources, and water quality; biological resources; cultural resources; utilities, service systems, and infrastructure; transportation and traffic; and hazardous materials and wastes.

The collective analysis of all appropriate projects in a single EA will eliminate project fractionation and segmentation; facilitate coordination of land use planning; expedite project execution by using early planning; reduce installation, reviewing agency, and major command workloads; provide cost savings; help better evaluate potential cumulative environmental impacts; assist in maintaining a baseline for future analysis; support strategic decisionmaking; encourage agency coordination; streamline the National Environmental Policy Act (NEPA) review process; and meet the U.S. Air Force's (USAF) Environmental Impact Analysis Process goals.

Individual projects analyzed in the EA should be considered independent of each other. Beale AFB might eventually choose to implement all, none, or any combination of these projects.

This section presents background information, the purpose of and need for the Proposed Action, and a summary of key environmental compliance requirements.

1.1 Background

Beale AFB is a USAF installation under the ACC. Beale AFB is the HQ of the 9th Reconnaissance Wing (9 RW). The 9 RW is responsible for providing national and theater command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. To accomplish this mission, the wing is equipped with the nation's fleet of U-2, RQ-4 Global Hawk, MC-12 Liberty reconnaissance, and T-38 jet trainer aircraft and associated support equipment. The wing also maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to theater contingencies. The 9 RW also provides support for Beale AFB, ranging from financial, personnel, housing, maintenance, legal, recreational, and medical needs to fire protection, chaplain services, and installation security (Beale AFB 2004).

Beale AFB is a 23,192-acre military installation in Yuba County, California, approximately 40 miles north of Sacramento, 13 miles east of Marysville, and 25 miles west of Grass Valley. The installation is located between the Yuba and Bear rivers in an area that characterizes the transition from the western Sacramento Valley east to the Sierra Nevada foothills (Beale AFB 2004) (see **Figure 1-1**). **Figure 1-2** shows Beale AFB and the proposed project areas.

1.2 Purpose of and Need for the Proposed Action

The overall purpose of the Proposed Action is to complete construction and demolition projects at Beale AFB to ensure that future mission and facility requirements are met. The overall need for the Proposed Action is to sustain mission functions to meet ongoing installation and Department of Defense (DOD) mission requirements. The purpose of and need for each individual project included in the Proposed Action is discussed in the following paragraphs.

1.2.1 Construct Temporary Lodging Facility

The purpose of the TLF project is to create adequate permanent facilities to provide short-term and temporary housing accommodations for military members and their dependents. The project is needed to expand and replace outdated existing lodging facilities, which require major maintenance and repair to meet current standards and have insufficient capacity to handle projected personnel needs. In November 2011, Headquarters Air Force Services conducted a project validation assessment for the proposed TLF Facility (HQ AFSVA 2011). This analysis determined that the existing TLF would require extensive repair of their heating, ventilation, and air conditioning systems, windows, and plumbing; kitchen and bathroom replacement; and fire suppression systems to meet Unified Facilities Criteria (UFC), and DOD Architectural Barriers Act (ABA) standards. All of the existing TLF units are two-story units with stairs; therefore, none of the existing units are compliant with DOD ABA standards. Furthermore, Beale AFB is frequently visited by personnel receiving training in support of intelligence operations. It is expected that the expansion of the installation's missions would bring a significant number of additional personnel to Beale AFB over the next several years. These personnel would require lodging at Beale AFB's TLF, and the existing facilities would be unable to accommodate all visitors.

1.2.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

The purpose of this project is to replace Bridges 2710 and 2720 on Gavin Mandery Drive. A Sustainability Assessment performed in March 2012 assessing the condition of Beale AFB infrastructure determined that the bridges are in "unsatisfactory" condition. The project is needed because the condition of the bridges has deteriorated such that they pose a risk to human health and safety and could disrupt mission operations at Beale AFB. Bridge 2710 has been evaluated and determined to be in "critical" condition. Bridge 2720 has been evaluated and determined to be in "poor" condition. Because these bridges are in advanced stages of deterioration of primary structural elements they need to be replaced. The allowable load on Bridge 2710 has been reduced from 18 tons to 3 tons. Bridge 2720 has also deteriorated and needs to be replaced to prevent further deterioration. The bridges have evidence of fatigue cracks in the steel and shear cracks in the concrete structures and scouring, which has weakened the substructure support. If these bridges continue to deteriorate, it might be necessary to close them until corrective action is taken, which could impact transportation access and cause delays in mission-support functions.

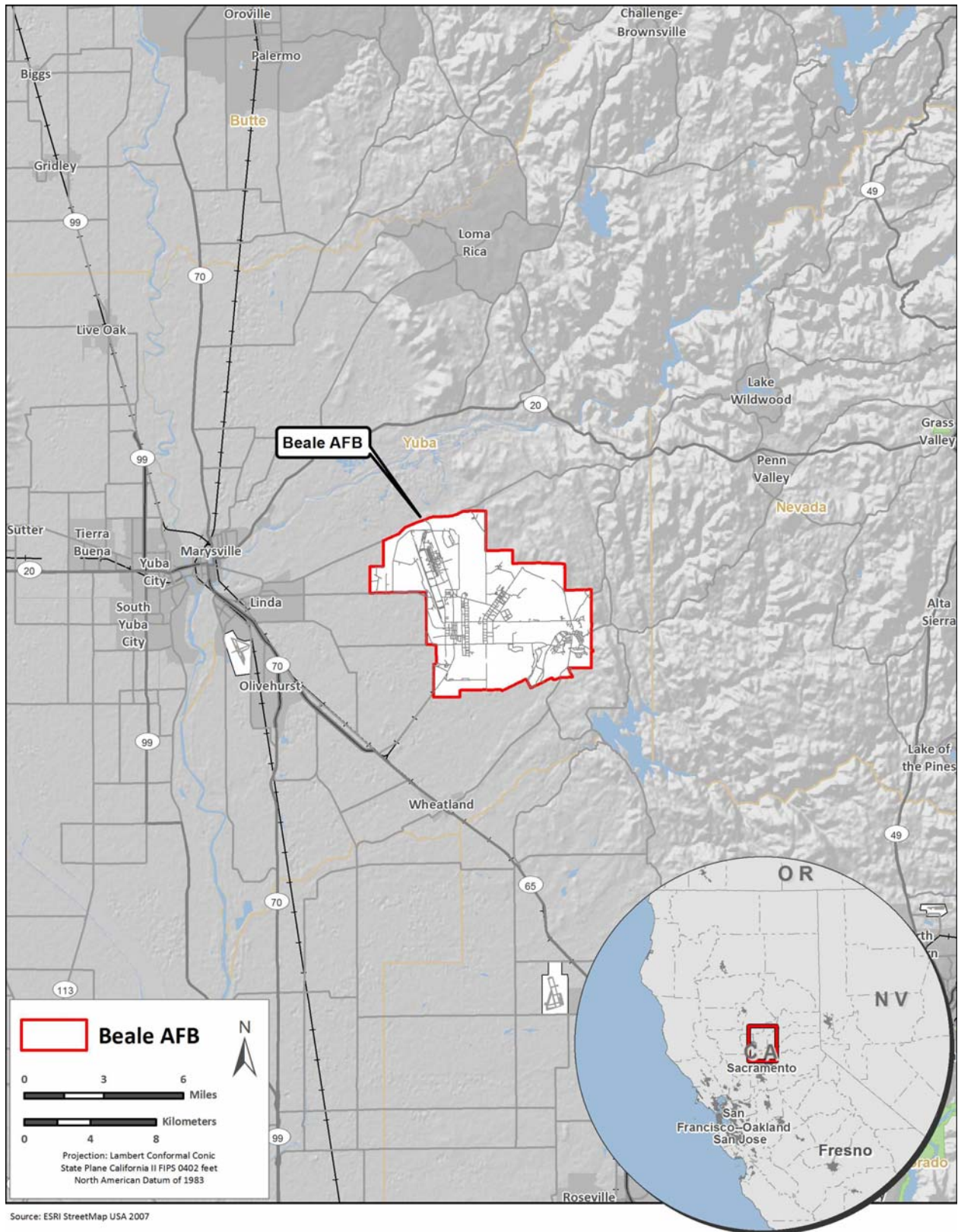


Figure 1-1. Beale AFB and Surrounding Area

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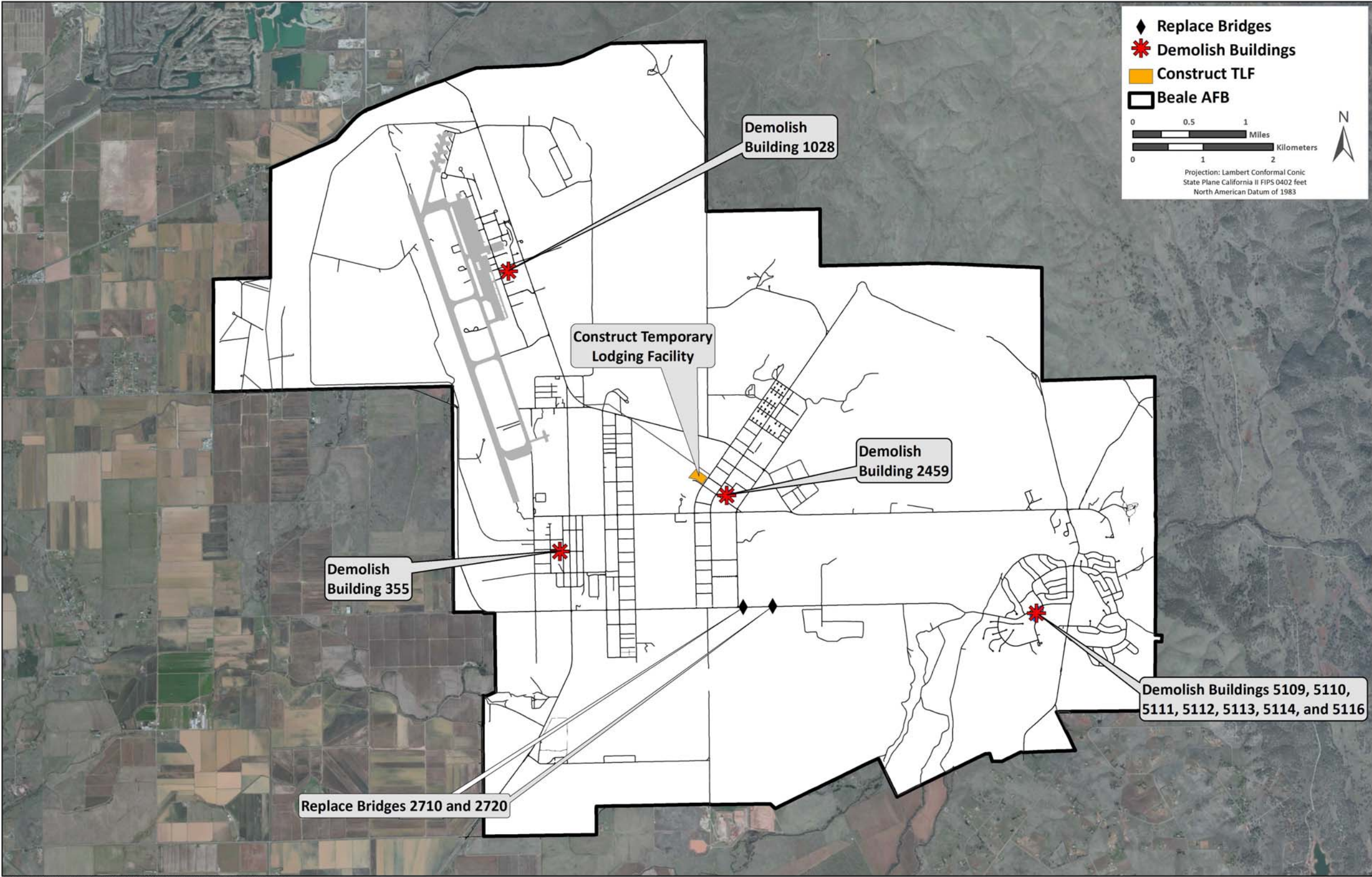


Figure 1-2. Map of Beale AFB and Proposed Project Areas

1.2.3 Implement the Base Demolition Plan

The purpose of this project is to demolish Buildings 355, 1028, 2459, 5109, 5110, 5111, 5112, 5113, 5114, and 5116 on Beale AFB (Figure 1-2). These buildings have reached the end of their useable life and have been identified as excess, obsolete, under-sized, under-used, and deteriorating. Demolition would increase consolidation of mission-support functions, optimize space allocation and use, and promote other emerging initiatives. The USAF currently expends a disproportionate amount in both manpower and money to maintain and operate these facilities.

The need for the project is to comply with the USAF's "20/20 by 2020" goal and Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*. The "20/20 by 2020" term describes a major goal of USAF Civil Engineering to achieve offsetting efficiencies to ensure that installations remain capable of fulfilling USAF missions and at the same time reduce the amount of the physical plant that it spends money on by 20 percent by the year 2020. USAF Civil Engineering currently manages more infrastructure than is necessary and must focus limited time and funding on only the infrastructure needed to perform the USAF mission. To achieve this goal, the USAF must divert its resources away from excess, obsolete, and under-used infrastructure, and implement processes to increase consolidation and demolition, optimize space allocation and utilization, and promote other emerging initiatives. Therefore, HQ ACC has worked to align ACC's consolidation/demolition plan with the 2009 through 2013 USAF Civil Engineer Strategic Plan to develop sustainable ACC installations by implementing asset management principles for built and natural assets. As a result of this alignment, the ACC's target is to reduce the building footprint at Beale AFB by 500,000 square feet (ft²) by 2020 and thus reduce the manpower and money needed to maintain and operate these facilities.

1.3 Summary of Key Environmental Compliance Requirements

The proposed projects are subject to Federal environmental review requirements because Beale AFB proposes the use of Federal funds and requires a Federal approval action. Therefore, project documentation has been prepared in compliance with NEPA. A Section 401 water quality certification would also be required from the California Regional Water Quality Control Board (CRWQCB), Central Valley Region. This NEPA document will help facilitate the California Environmental Quality Act (CEQA) requirements of the Section 401 water quality certification process.

The scope of this EA includes an evaluation of proposed projects that have the potential to impact the 100-year floodplain or wetlands. The projects that directly impact floodplain or wetland areas would require a Finding of No Practicable Alternative (FONPA) and approval from HQ ACC. Floodplain and wetland impacts would be reduced to the maximum extent practicable through project design and the implementation of environmental protection measures. In addition, appropriate permits would be obtained from applicable regulatory agencies to address impacts on wetland areas and to determine potential mitigation, if required.

This EA includes projects that could have a direct impact on historic properties. All projects that would impact properties listed in or eligible for listing on the National Register of Historic Places (NRHP) are subject to the consultation requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966. Coordination under Section 106 would be completed as necessary for each project within the EA prior to a Finding of No Significant Impact (FONSI) being signed.

1.3.1 National Environmental Policy Act

NEPA (42 United States Code [U.S.C.] Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. The intent of NEPA is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences, and take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ) that was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The CEQ regulations mandate that all Federal agencies use a prescribed, structured approach to environmental impact analysis. This approach also requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action.

The process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ regulations specify that an EA be prepared to provide evidence and analysis for determining whether to prepare a FONSI or FONSI/FONPA, where a FONPA is appropriate, or whether the preparation of an Environmental Impact Statement (EIS) is necessary. The EA documents an agency's compliance with NEPA when an EIS is unnecessary and facilitates preparation of an EIS when one is required.

Air Force Policy Directive 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *Environmental Impact Analysis Process*, 32 CFR Part 989, as amended.

1.3.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal and state agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. The USAF addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA can be integrated “with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively.”

This EA examines potential effects of the Proposed Action and alternatives on 11 resource areas: noise; land use and planning; air quality and GHG emissions; health and safety; geology and soils; hydrology, water resources, and water quality; biological resources; cultural resources; utilities, service systems, and infrastructure; transportation and traffic; and hazardous materials and wastes. These resources were identified as being potentially affected by the Proposed Action and include applicable elements of the human and natural environments that are prompted for review by EO, regulation, or policy. While not comprehensive, a list of potentially applicable laws, regulations, policies, and planning criteria is provided in **Table 1-1**.

Some environmental resources that are often analyzed in an EA have been omitted from the analysis in this EA. The basis for such exclusion is as follows:

Aesthetics/Visual Resources. The Proposed Action and alternatives do not involve any activities that would significantly alter the aesthetic qualities of the area or landscape. The Proposed Action would be

consistent with the current characteristic features of the area and landscape. Accordingly, Beale AFB has omitted detailed examination of visual/aesthetic resources in this EA.

Agriculture Resources. The Proposed Action and alternatives do not involve any activities that would conflict with existing agricultural uses. The Proposed Action and alternatives would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural uses. Accordingly, Beale AFB has omitted detailed examination of agriculture resources in this EA.

Environmental Justice. The Proposed Action and alternatives do not involve any activities that would contribute to changes in low-income or minority populations or disproportionately impact children (EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*) because all work would be performed within the boundary of Beale AFB and would not impact adjacent communities. Accordingly, Beale AFB has omitted detailed examination of environmental justice in this EA.

Mineral Resources. The Proposed Action and alternatives would not result in the loss of availability of known mineral resources. Accordingly, the USAF has omitted detailed examination of mineral resources in this EA.

Table 1-1. Listing of Applicable Statutes and Regulations

Regulation	Source
Noise	
Noise Control Act of 1972	42 U.S.C. 4901 et seq., Public Law (P.L.) 92-574
Air Installation Compatible Use Zone Program	Air Force Instruction (AFI) 32-7063; DOD Instruction 4165-57
Architecture Noise and Vibration Control	UFC 3-101-01; UFC 3-450-01
Land Use and Planning	
Land Use Planning Bulletin, Base Comprehensive Planning	HQ USAF/LEEVX, 1 August, 1986
Air Quality and Greenhouse Gas Emissions	
Clean Air Act of 1970 and Amendments of 1977 and 1990, including the General Conformity Rule and the Greenhouse Gas Tailoring Rule	42 U.S.C. 7401 et seq., as amended
Air Quality Compliance and Resource Management	AFI 32-7040
Federal Leadership in Environmental, Energy, and Economic Performance (5 October 2009)	EO 13514
Health and Safety	
USAF Mishap Prevention Program	AFI 91-202
Protection of Children from Environmental Health and Safety Risks (23 April 1997)	EO 13045
Hydrology, Water Resources, and Water Quality	
Clean Water Act of 1972	33 U.S.C. 1251 et seq., as amended
Safe Drinking Water Act of 1974	42 U.S.C. 300
Water Quality Compliance	AFI 32-7041
Protection of Wetlands (24 May 1977)	EO 11990
Floodplain Management (24 May 1977)	EO 11988

Regulation	Source
Energy Independence and Security Act of 2007	P.L. 110-140
Biological Resources	
Endangered Species Act of 1973	16 U.S.C. 1531–1543
Migratory Bird Treaty Act of 1918	16 U.S.C. 703–712
Sikes Act Improvement Act of 1977	16 U.S.C. 670a–670o, 74 Stat. 1052
Invasive Species (3 February 1999)	EO 13112
Protection and Enhancement of Environmental Quality (5 March 1970)	EO 11514
Federal Leadership in Environmental, Energy, and Economic Performance (5 October 2009)	EO 13514
Responsibilities of Federal Agencies to Protect Migratory Birds (10 January 2001)	EO 13186
Integrated Natural Resources Management	AFI 32-7064
Cultural Resources	
National Historic Preservation Act of 1966	16 U.S.C. 470 et seq., as amended
Archaeological Resources Protection Act of 1979	16 U.S.C. 470a–11, as amended
American Indian Religious Freedom Act of 1978	P.L. 95-341 and 42 U.S.C. 1996, as amended
The Native American Graves Protection and Repatriation Act of 1990	P.L. 101-601 and 25 U.S.C. 3001–3013
Protection and Enhancement of the Cultural Environment (13 May 1971)	EO 11593
Indian Sacred Sites (24 May 1996)	EO 13007
Consultation and Coordination with Indian Tribal Governments (6 November 2000)	EO 13175
Preserve America (3 March 2003)	EO 13287
Cultural Resources Management Program	AFI 32-7065
Locating Federal Facilities on Historic Properties in Our Nation’s Central Cities (21 May 1996)	EO 13006
DOD Interactions with Federally Recognized Tribes (14 September 2006)	DODI 4710.02
Transportation and Traffic	
Hazardous Material Transportation Act of 1975	49 U.S.C. 1761
Hazardous Materials and Wastes	
Resource Conservation and Recovery Act of 1976	42 U.S.C. 6901, as amended
Comprehensive Environmental Response, Compensation, and Liability Act of 1980	42 U.S.C. 103
Pollution Prevention Act of 1990	42 U.S.C. 133
Toxic Substance Control Act of 1976	15 U.S.C. 53
Superfund Amendments and Reauthorization Act of 1986	26 U.S.C. 9507
Strengthening Federal Environmental, Energy, and Transportation (24 January 2007)	EO 13423
Waste Management	AFI 32-7042
Environmental Restoration Program	AFI 32-7020

Regulation	Source
Federal Compliance with Pollution Control Standards (7 October 1978)	EO 12088
Defense Environmental Restoration Program	10 U.S.C. 2701 et seq.
General	
California Environmental Quality Act	California Public Resources Code 21000-21177
California Environmental Quality Act Guidelines	California Code of Regulations Title 14, Division 6, Chapter 3, Section 15000-15387
National Environmental Policy Act of 1969	42 U.S.C. 4321–4347
Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act	40 CFR, Parts 1500–1508

Public Services. The Proposed Action and alternatives would not result in changes in area population or associated changes in demand for public services. The Proposed Action and alternatives do not involve any activities that would affect the provision of public services. Accordingly, Beale AFB has omitted detailed examination of public services in this EA.

Recreation. The Proposed Action and alternatives are on Federal property (i.e., Beale AFB) and do not include the construction of recreational facilities. The Proposed Action and alternatives do not involve any activities that would place increased demand on or lead to the deterioration of recreational facilities. Accordingly, Beale AFB has omitted detailed examination of recreation in this EA.

Socioeconomics and Population/Housing. The Proposed Action and alternatives do not involve any activities that would directly affect activities outside of Beale AFB, or directly or indirectly contribute to changes in socioeconomic resources. It is anticipated that all of the construction and demolition work would be accomplished by local workers in the local labor force, and would not result in any outside workers and their dependents moving to the area. There would be no change in the number of personnel assigned to Beale AFB and no changes in area population or associated changes in demand for housing. No persons or existing housing would be displaced as a result of the Proposed Action and alternatives. Accordingly, Beale AFB has omitted detailed examination of socioeconomics and population/housing in this EA.

1.3.3 Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), Native American Tribal Consultation, and Public Involvement

IICEP. NEPA requirements help ensure that environmental information is made available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*, requires the USAF to implement the IICEP process, which is used for the purpose of agency coordination and implements scoping requirements.

Through the IICEP process, Beale AFB notified relevant Federal, state, and local agencies of the Proposed Action and alternatives and provided them sufficient time to make known their environmental

concerns specific to the action. The IICEP mailing list is provided in **Appendix A**. The IICEP process also provided Beale AFB the opportunity to cooperate with and consider state and local views in implementing the Federal proposal. IICEP material related to this action has been included in **Appendix A**.

Native American Tribal Consultation. EO 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Beale AFB geographic region have been invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. Because many tribes were displaced from their original homelands or moved, tribes with cultural roots in an area might not currently reside in the region where the undertaking is proposed. Effective consultation requires identification of tribes based on ethnographic and historical data and not simply a tribe's current proximity to a project area. The tribal coordination process is distinct from NEPA consultation or the IICEP processes and requires separate notification of all relevant tribes by Beale AFB. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The Beale AFB point-of-contact for Native American tribes is the Installation Commander. The Beale AFB point-of-contact for consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation is the Cultural Resources Manager.

The goal of the tribal consultation process is not simply to consult on a particular undertaking but rather to build constructive relationships with appropriate Native American tribes. Consultation should lead to constructive dialogues in which the Native American tribes are active participants in the planning process. As such, consultation regarding specific proposed projects must begin very early in the process and is outside the scope of this EA. Beale AFB is continuously developing government-to-government relationships with affiliated federally recognized tribes and other interested parties. The Native American tribal governments that have coordinated with regarding this action are listed in **Appendix A**.

Public Involvement. A Notice of Availability was published in the Marysville *Appeal-Democrat* on 28 February 2014 announcing that the Draft EA was available to the public for a 30-day review period. The Notice of Availability was issued to solicit comments on the Proposed Action and involve the local community in the decisionmaking process. Public and agency comments on the Draft EA were considered prior to a decision being made as to whether or not to sign a FONSI.

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2. Description of the Proposed Action and Alternatives

2.1 Detailed Description of the Proposed Action

This section describes the Proposed Action and alternatives to the Proposed Action, including the No Action Alternative. As discussed in **Section 1.3**, the NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for a proposed action, as defined in **Section 1.2**. In addition, CEQ regulations also specify the inclusion of the No Action Alternative against which the impacts of the action alternatives can be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in accordance with CEQ regulations for implementing NEPA and included in the environmental analysis to provide a baseline for comparison with the Proposed Action.

The three projects that are evaluated in this EA and their associated possible locations have undergone an intensive review by Civil Engineering, Planning, Asset Management, and supporting installation staff. In determining the best operational, engineering, and siting solutions to fulfill the purpose and need of each project, the following selection standards were applied:

1. Fulfillment of current mission requirements
2. Facility sustainability as mission evolves or changes
3. Economical feasibility, including costs to construct and maintain the facility
4. Consistency with future land uses
5. Consistency with state, regional, and local plans
6. Consistency with DOD and USAF policies, guidance, and directives
7. Functional compatibility with adjacent facilities
8. Collocation of like services and land uses
9. Minimization of safety risks and hazard exposure
10. Availability of sites and suitability of space
11. Adherence to USAF Strategic Sustainable Performance goals and objectives
12. Environmental constraints
13. Engineering Feasibility

The proposed projects and any applicable alternatives are described in the following subsections.

2.1.1 Construct Temporary Lodging Facility

2.1.1.1 Proposed Action

Under this project, Beale AFB proposes to construct a TLF consisting of four, one-story buildings. The proposed location for the TLF would be on a previously disturbed, vacant site at the intersection of Robert Nicoletti Way and C Street (see **Figure 2-1**). **Figure 2-2** shows the proposed layout of the TLF project.

The proposed project would include the following:

- Demolish existing parking lot and sidewalks and portions of the existing running trail.
- Construct a TLF. The proposed TLF would be designed consistent with the USAF Temporary Lodging Design Guide and installation design guidelines. The project site would include 34 units, consisting of 32 two-bedroom units and 2 handicap-accessible, two-bedroom units. The TLF would consist of four, one-story buildings. Two of the buildings would have eight units and two of the buildings would have nine units. Each unit would consist of a living area, kitchen, dining area, bathrooms, and bedrooms. Additionally, the facility would include staff restrooms, a break room, housekeeping and laundry facilities, administrative space, and storage/supply space. The total estimated gross footprint area for all four facilities is approximately 46,200 ft². Based on the size of the buildings, the TLF would be exempt from DOD Anti-Terrorism/Force Protection requirements per the UFC 4-720-01 for Lodging Facilities and UFC 4-010-01 for DOD Minimum Antiterrorism Standards for Buildings. The TLF would be constructed to meet all applicable standards outlined in the DOD ABA. In addition, the TLF would be constructed in a manner to obtain U.S. Green Building Council Leadership in Energy and Environmental Design 2009 Minimum Program Requirements for Homes in accordance with USAF Memorandum "Air Force Sustainable Design and Development Implementing Guidance" dated 2 June 2011.
- Construct associated parking areas, access roads, and sidewalks. The parking lot would be constructed with two means of access from C Street.
- Construct a playground and picnic area for guests to use on site.
- Construct a retention basin on the western portion of the site to capture, temporarily store, and trap particulates from storm water run-off.
- Modify the groundwater monitoring well, which would remain on site.
- Relocate the existing bus stop from its current location to farther north along C Street.

The entire TLF project area would be cleared and graded, which would require the removal of all existing vegetation. One vernal pool present on the project site would be impacted by construction activities. Two drainage ditches are located adjacent to the project site. The proposed retention basin would slightly encroach on a small portion of the northern drainage. The proposed facilities would connect to existing utilities adjacent to the project site. As shown in Table 2-1, the TLF project would disturb up to 317,988 ft² (7.3 acres).

Table 2-1. Estimated Area of Disturbance from Construction of the Temporary Lodging Facility

Activity	Fiscal Year	Area of Disturbance (ft ² [acres])
Construct Temporary Lodging Facility*	2014 to 2015	317,988 ft ² (7.3)

Note: * For planning purposes it is assumed the entire TLF site shown on **Figure 2-1** would be disturbed for construction of the TLF.

2.1.1.2 Alternatives

No alternatives for construction of the TLF project were carried forward for this analysis. Other alternatives considered but eliminated from detailed analysis are included in **Section 2.3.1**.

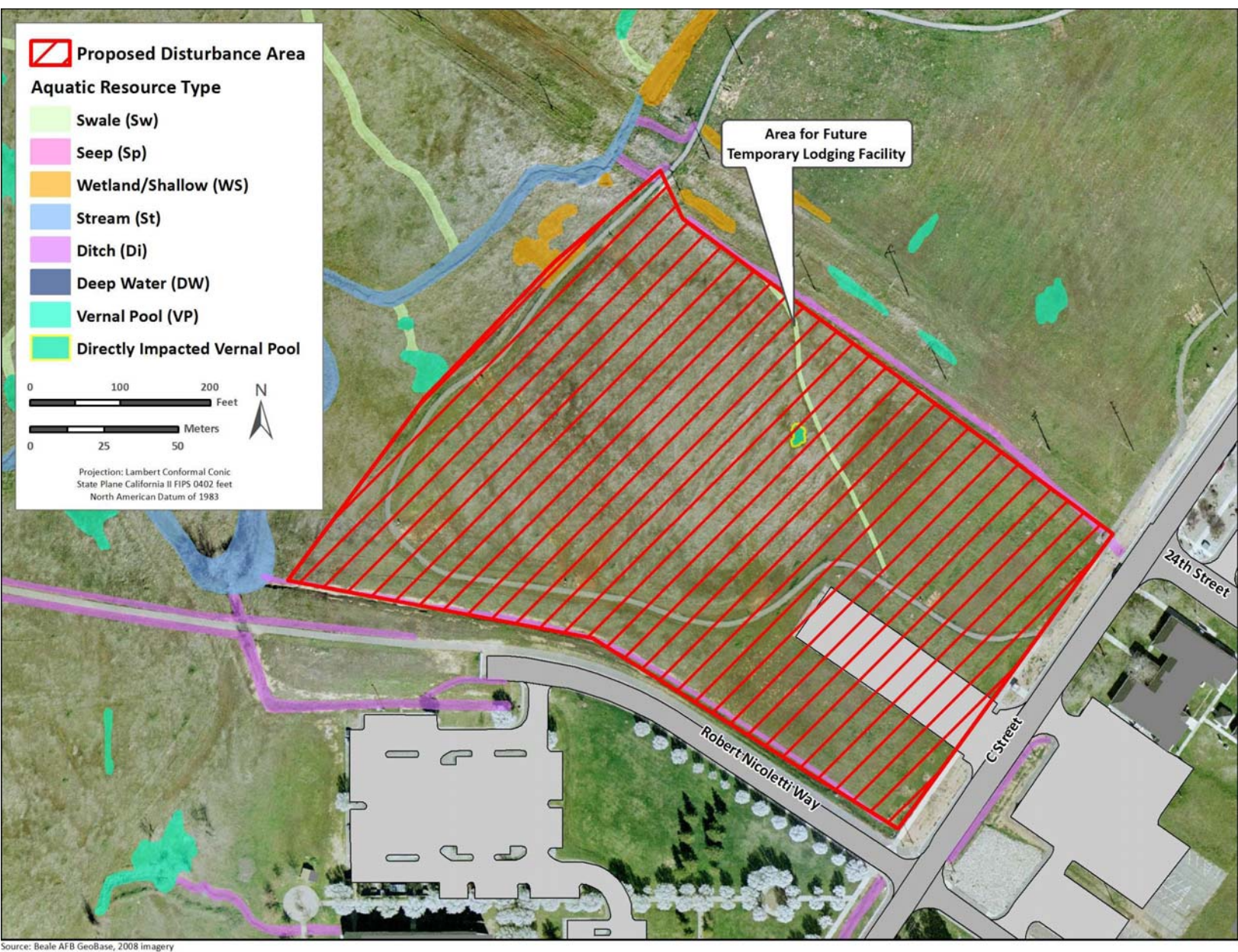


Figure 2-1. Construct Temporary Lodging Facility

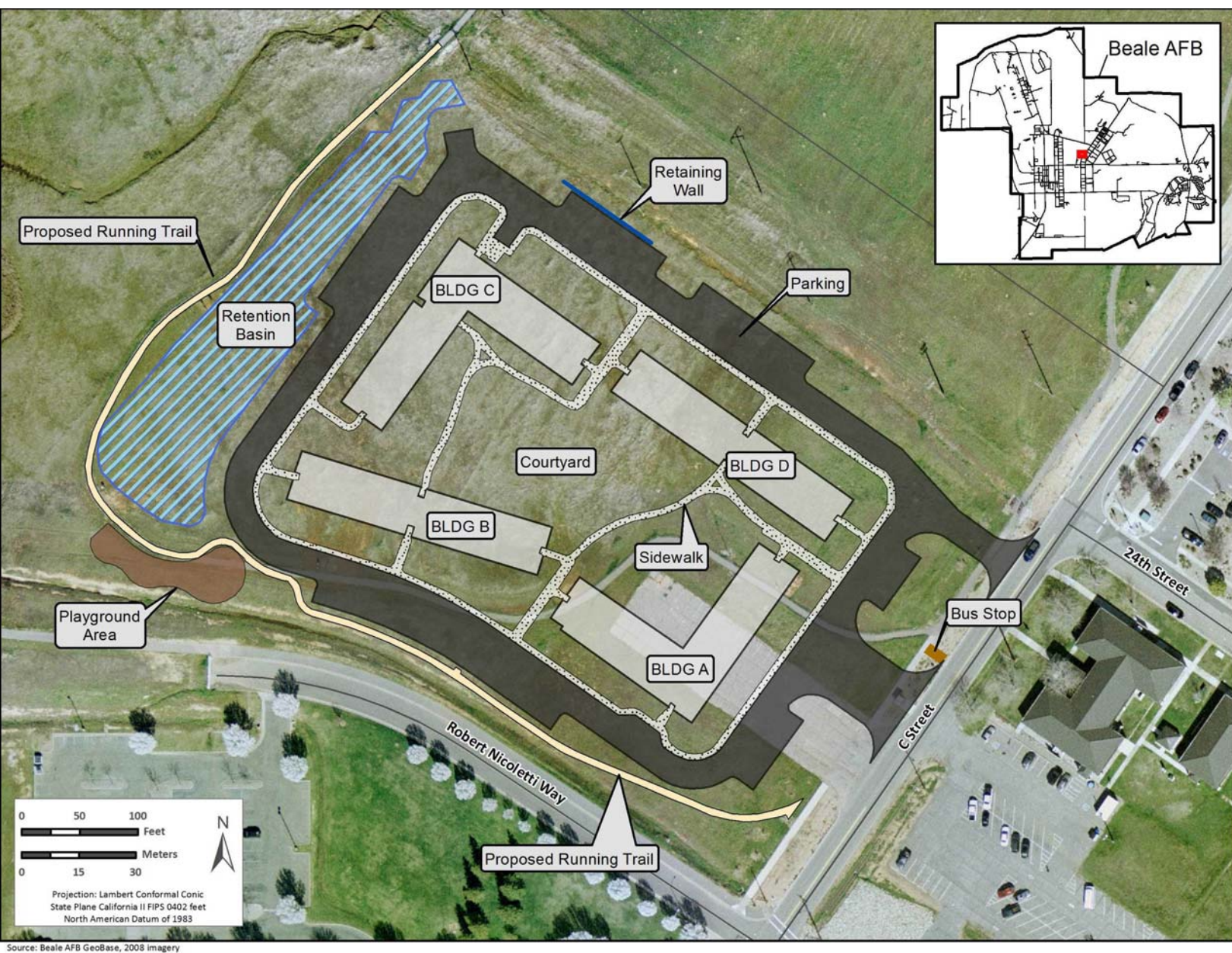


Figure 2-2. Proposed Site Layout for Temporary Lodging Facility

2.1.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

2.1.2.1 Proposed Action

Under this project, Beale AFB would replace Bridges 2710 and 2720 along Gavin Mandery Drive (see **Figures 2-3** and **2-4**). Bridges 2710 and 2720 were built in 1954 and reconstructed in 1972. Bridges 2710 and 2720 cross tributaries of Hutchinson Creek. Bridge 2710 consists of a 2-span, continually reinforced, cast-in-place concrete slab. Bridge 2720 consists of a double arch, corrugated metal culvert with reinforced concrete slab over backfill and reinforced concrete headwalls. A 12-inch sanitary sewer line parallels the south edge of Gavin Mandery Drive and crosses Hutchinson Creek. This sewer line is attached to both bridges. **Table 2-2** provides information related to Bridges 2710 and 2720 and area of disturbance for the Proposed Action.

Table 2-2. Condition of Bridges Proposed for Replacement under the Proposed Action

Bridge	Characteristics	National Bridge Inspection Standards Status	Condition	Fiscal Year	Area of Disturbance (ft ² [acres])*
2710	Bridge: 31 feet long by 27 feet wide	Critical	Advanced deterioration of primary structural elements	2014	Bridge: 13,068 (0.30)
2720	Bridge: 29 feet long by 27 feet wide	Poor	Could be advanced section loss, deterioration, spalling, or scouring	2014	Bridge: 15,246 (0.35)
Total Land Disturbance					28,314 (0.65)

Note: * Area of disturbance for bridge replacement includes the bridge footprint, pavement replacement, temporary stream low flow and check dams, temporary bypass sewer, and upstream and downstream erosion control on the banks of Hutchinson Creek.

Demolition and construction activities of both bridges would only occur during the dry season and would not require channel dewatering. The proposed project would consist of the following:

- Demolish both bridges, including removal of all structural components, columns, guardrails, wingwalls, abutments, and foundations.
- Widen Gavin Mandery Drive at Bridge 2710 to accommodate two 12-foot-wide lanes and a 4-foot-wide paved shoulder.
- Install new cast-in-place double-box reinforced concrete bridges per California Department of Transportation standards.
- Install new cast-in-place reinforced concrete warped wingwalls and aprons per California Department of Transportation standards.
- Install new guardrails per California Department of Transportation standards.
- Repair the sanitary sewer line.
- Repair upstream and downstream erosion on the banks of Hutchinson Creek near the two bridges using rip-rap and other soil stabilization measures to reduce potential for further erosion.

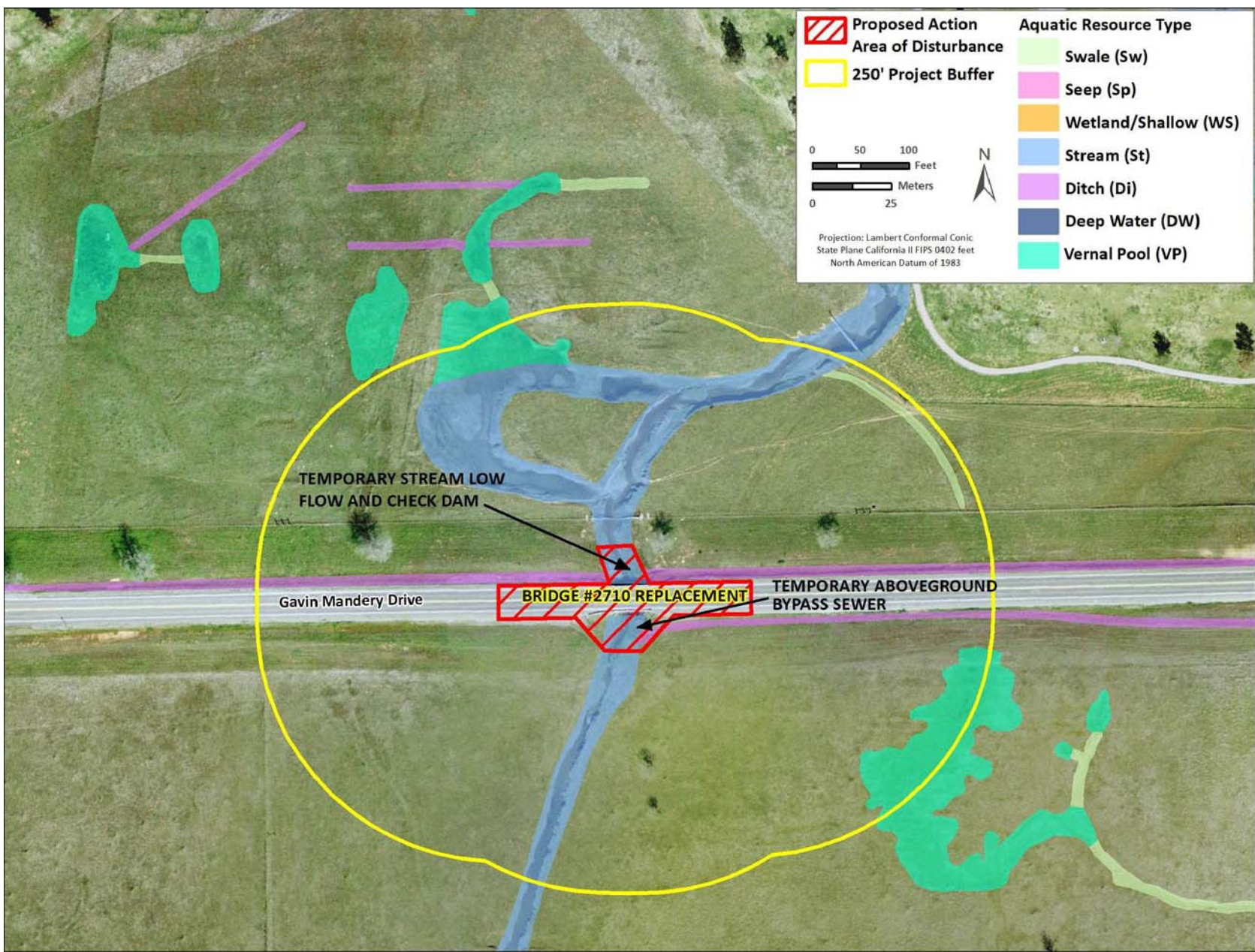


Figure 2-3. Replace Bridge 2710 Along Gavin Mandery Drive: Proposed Action

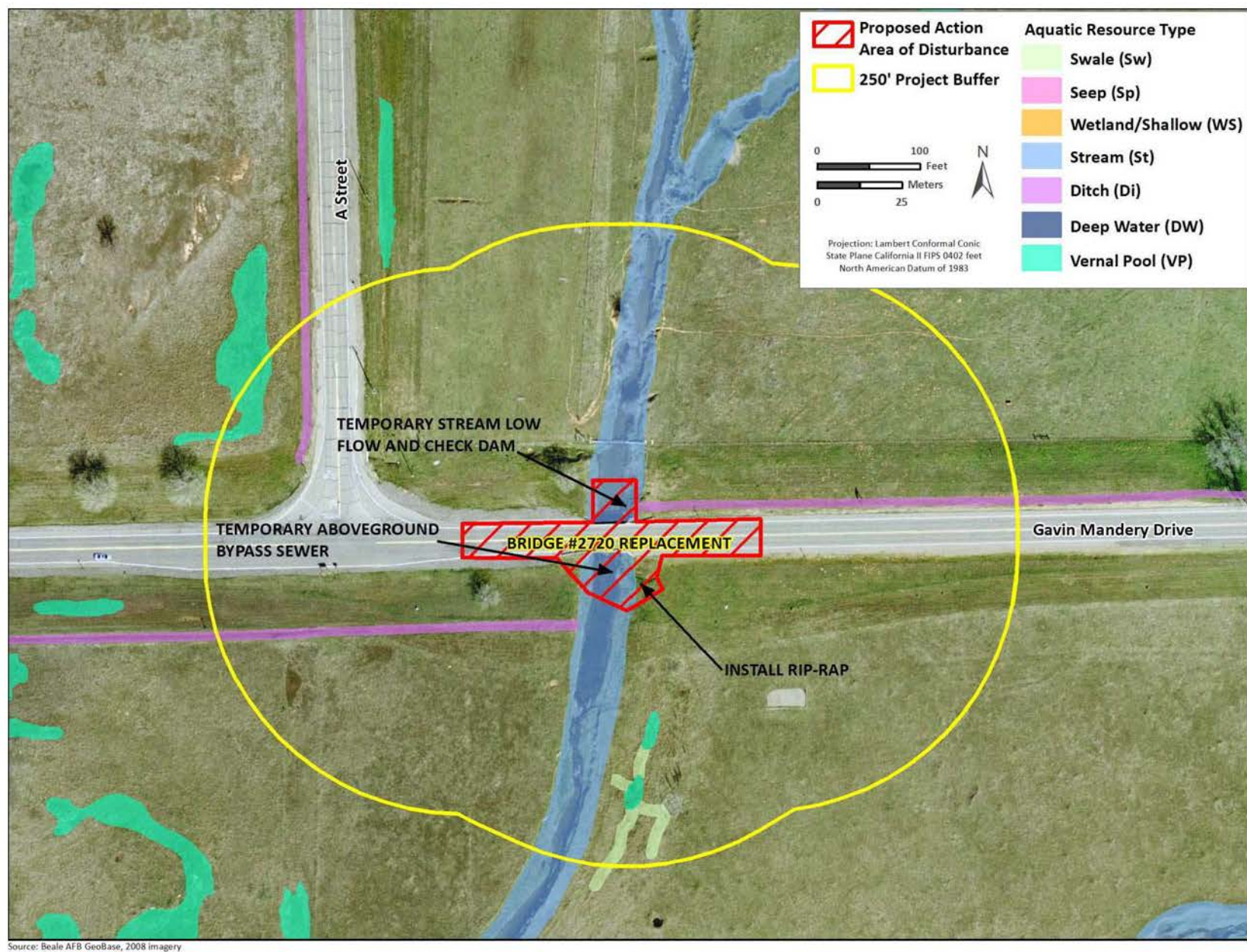


Figure 2-4. Replace Bridge 2720 Along Gavin Mandery Drive: Proposed Action

- Repave Gavin Mandery Drive over the entire length of the construction area.
- Install temporary aboveground bypass for the sewer line to ensure continued sanitary sewer service during planned demolition and construction activities.
- Construct a temporary low-flow stream bypass and check dam system on the north side of each bridge during demolition and construction activities.

Gavin Mandery Drive would be closed between A Street and the installation landfill during demolition and construction activities, and all traffic would be diverted to alternate routes.

2.1.2.2 Alternative 1: Replace Bridges 2710 and 2720 and Construct Temporary Bypass Road

One alternative, Alternative 1, for the replacement of Bridges 2710 and 2720 was carried forward for further detailed analysis. Alternative 1 includes all project components described under the Proposed Action for the Replacement of Bridges 2710 and 2720 (see **Section 2.1.2.1**); however, it also includes construction of a temporary bypass road in addition to those project components (see **Figures 2-5 and 2-6**). Under Alternative 1, a temporary bypass road around the construction area for Bridges 2710 and 2720 would be installed that would allow Gavin Mandery Drive to remain open during construction. The temporary bypass road would be unpaved with a gravel base. It would be 24 feet wide and would be installed south of each bridge. This would require installing a temporary bridge structure over the creek, which would require some fill to be installed in the creek bed. Upon completion of construction of Bridges 2710 and 2720, the temporary bypass roads and temporary bridge structures would be removed and the area would be restored to preexisting conditions. **Table 2-3** provides information related to Bridges 2710 and 2720 and area of disturbance for Alternative 1.

Other alternatives considered but eliminated from detailed analysis are included in **Section 2.3.1**.

Table 2-3. Condition of Bridges Proposed for Replacement under Alternative 1

Bridge	Characteristics	National Bridge Inspection Standards Status	Condition	Fiscal Year	Area of Disturbance (ft ² [acres])*
2710	Bridge: 31 feet long by 27 feet wide Temporary Bypass road: 530 feet long by 24 feet wide	Critical	Advanced deterioration of primary structural elements	2014	Bridge: 13,068 (0.30) Bypass road: 13,939 (0.32) Total: 27,007 (0.62)
2720	Bridge: 29 feet long by 27 feet wide Temporary Bypass road: 530 feet long by 24 feet wide	Poor	Could be advanced section loss, deterioration, spalling, or scouring	2014	Bridge: 15,246 (0.35) Bypass road: 13,939 (0.32) Total: 29,185 (0.67)
Total Land Disturbance					56,192 (1.29)

Note: * Area of disturbance for bridge replacement includes the bridge footprint, pavement replacement, temporary stream low flow and check dams, temporary bypass sewer, upstream and downstream erosion on the banks of Hutchinson Creek, and 24-foot-wide unpaved, temporary bypass road and related backfill.

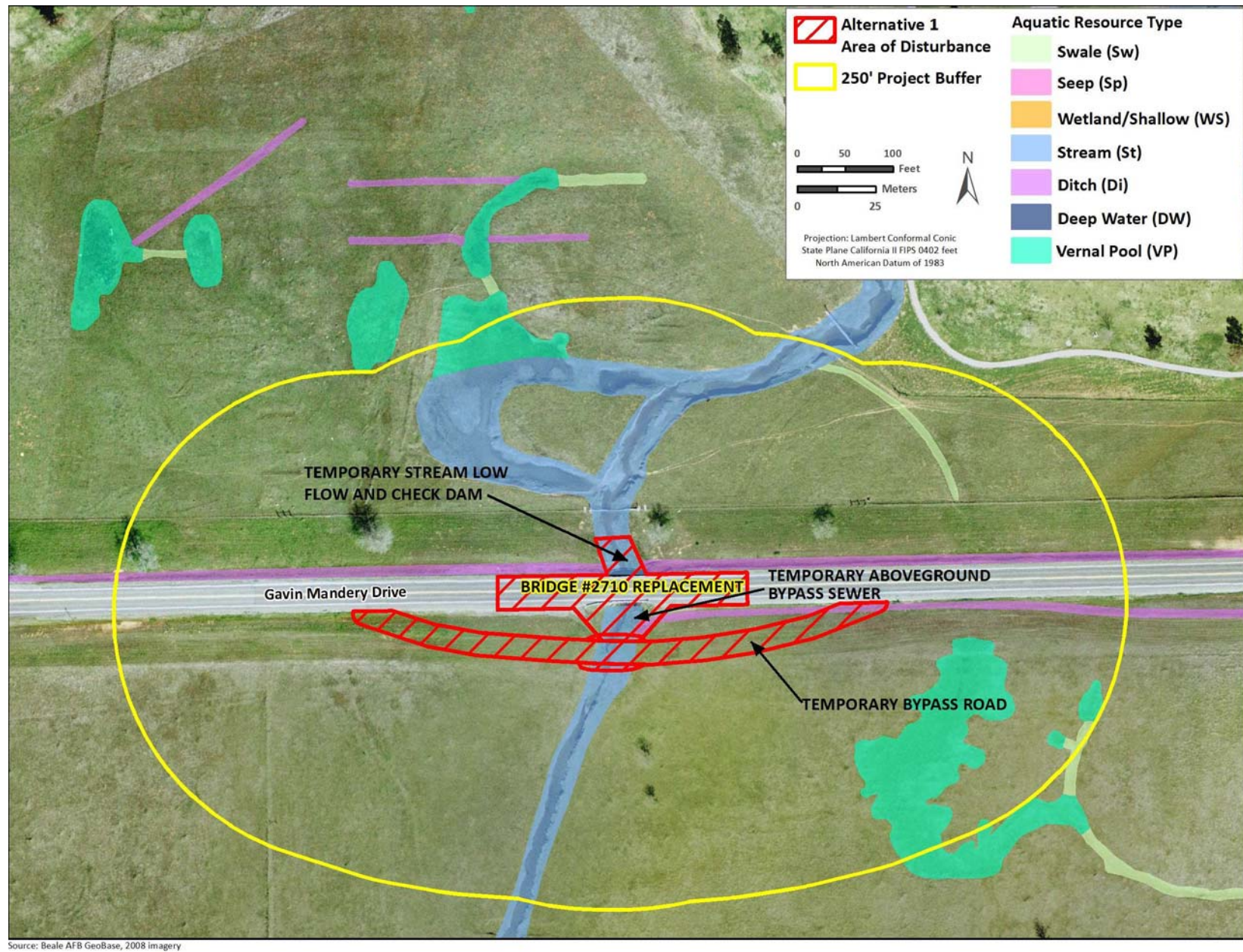


Figure 2-5. Replace Bridge 2710 Along Gavin Mandery Drive: Alternative 1

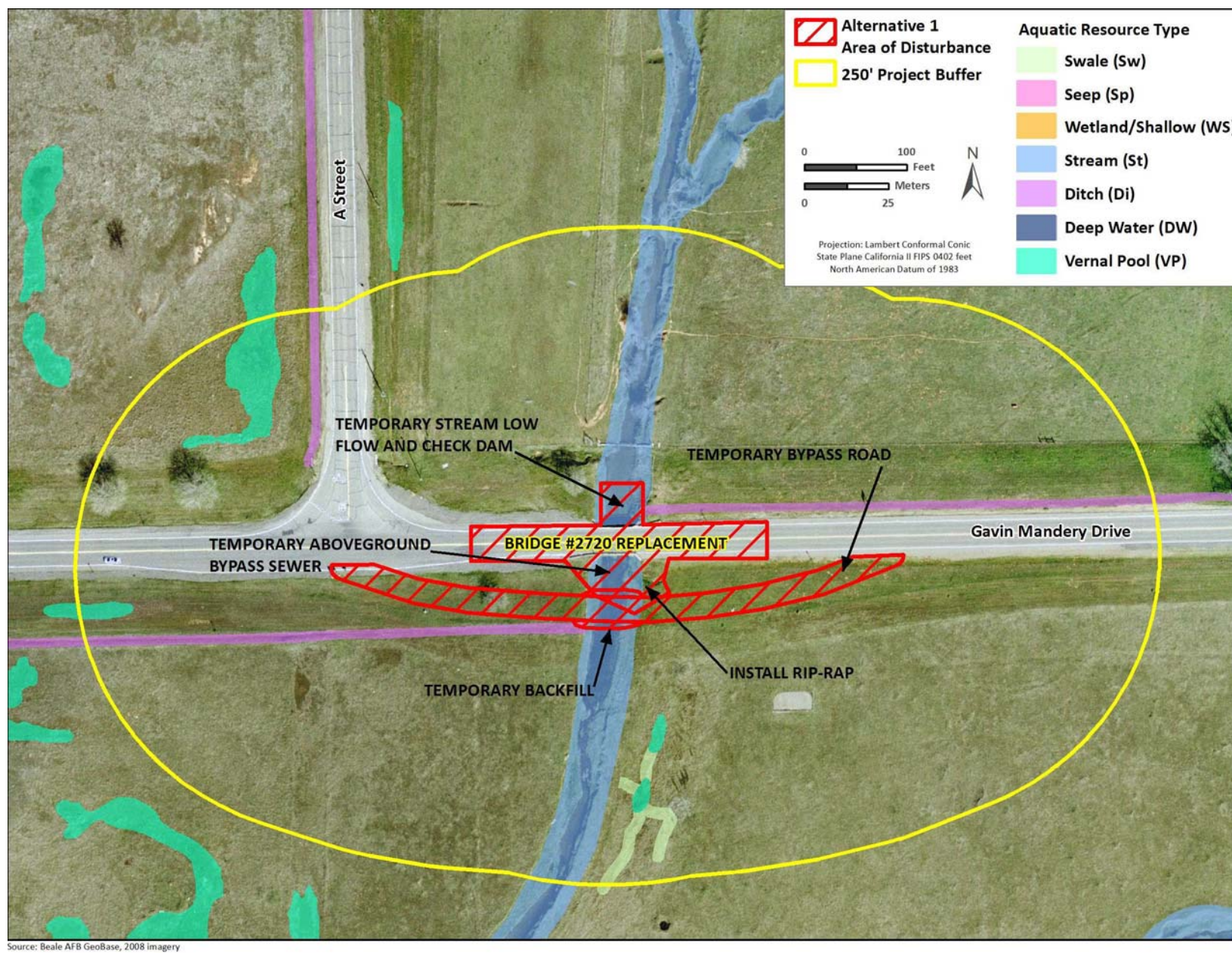


Figure 2-6. Replace Bridge 2720 Along Gavin Mandery Drive: Alternative 1

2.1.3 Implement the Base Demolition Plan

2.1.3.1 Proposed Action

Under this project, Beale AFB would implement the Base Demolition Plan, which includes demolition of 10 buildings (Buildings 355, 1028, 2459, 5109, 5110, 5111, 5112, 5113, 5114, and 5116) on Beale AFB (see **Figure 2-7**). Details related to these buildings including areas of disturbance are located in **Table 2-4**.

Demolition of Buildings 355, 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would include the following:

- Demolition of the facilities and removal of the foundations
- Demolition of associated parking lots, pavements, sidewalks, fencing, and other structures
- Termination of utilities, including cutting and capping lines
- Restoration of the sites to match the surrounding area.

Demolition of Buildings 1028 and 2459 would include the following:

- Demolition of the facilities and removal of the foundations. Associated parking lots, pavements, sidewalks, and fencing would be left in place to support other facilities and functions in the area.
- Termination of utilities, including cutting and capping lines.
- Restoration of the sites to match the surrounding area.

Upon completion of demolition activities, the excavated areas would be filled with soil and the area reseeded and restored to natural or preexisting conditions. All fill material for restoration activities would be obtained from an approved borrow pit and screened to ensure it contains no cultural resources or hazardous substances. In addition, all trees and vegetation associated with facilities scheduled for demolition would be replaced or relocated as applicable and the area reseeded with appropriate species.

Some of the buildings planned for demolition are currently occupied. The plan to relocate the personnel and functions for each of these buildings is provided as follows:

- Building 2459: All personnel and functions located in this facility would be relocated to the proposed Fitness Center once it is constructed. Building 2459 would not be demolished until the Fitness Center is constructed or other facilities are obtained, as appropriate.
- Buildings 5109 to 5114 and 5116: All personnel and functions located in these facilities would be relocated to the proposed TLF project once it is constructed.

2.1.3.2 Alternatives

Because of mission response times, future available space requirements, and land use capabilities, there were no reasonable alternatives to implementation of the Base Demolition Plan that met the needs of the Proposed Action.

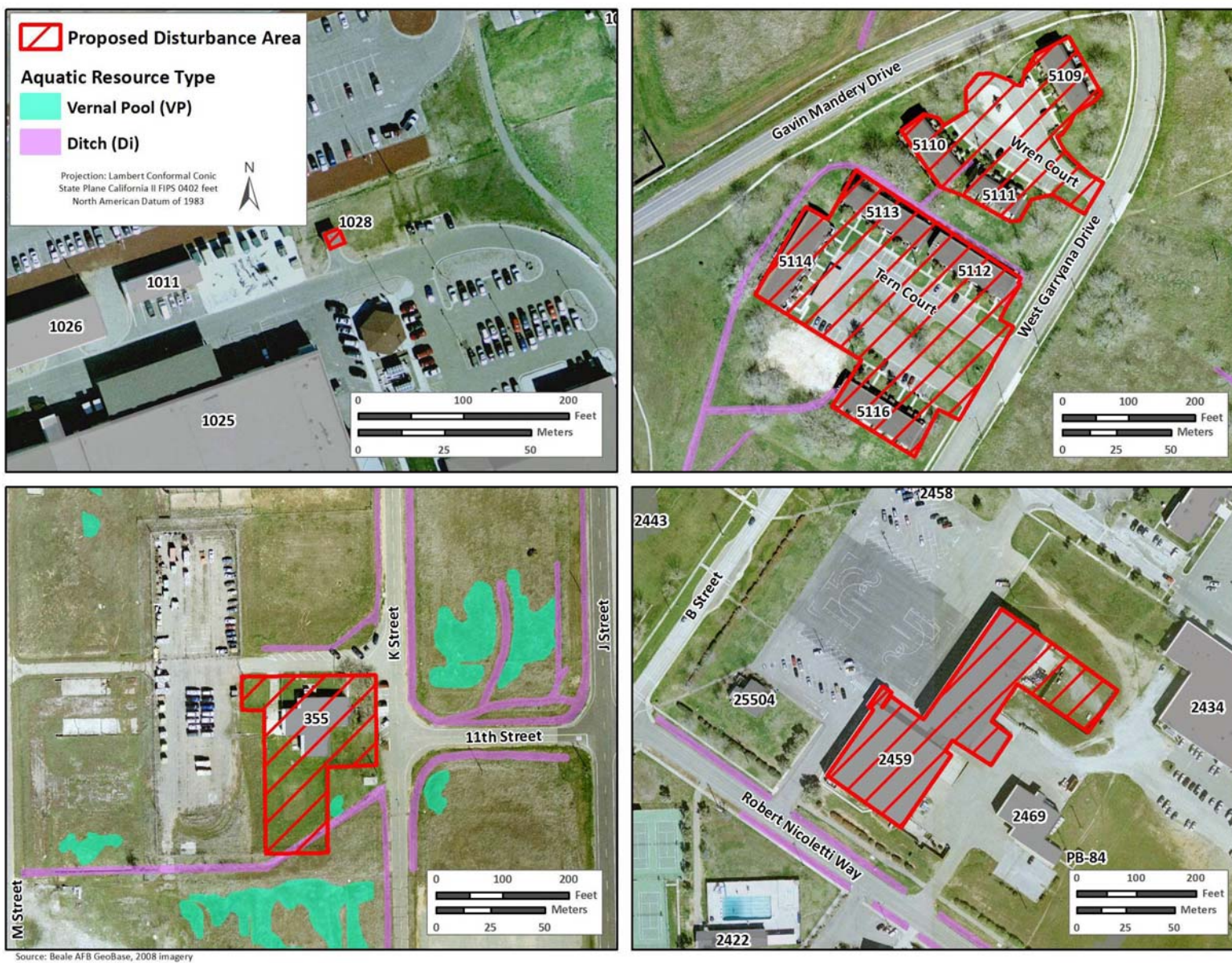


Figure 2-7. Buildings on Beale AFB Proposed for Demolition Under the Base Demolition Plan

Table 2-4. Buildings Proposed for Demolition at Beale AFB

Demolition Project	Description	Year Constructed	Fiscal Year of Demolition	Building Square Footage	Area of Disturbance (ft² [acres])*
355	Administrative Office	1953	2016	5,376	37,026 (0.85)
1028	Shop	1966	2015	178	219 (0.01)
2459	Currently occupied by Force Support Squadron, Airman's Attic, 548 Storage, Youth Center, Civil Engineer Squadron/Furnishings Management Office, Medical Group Health & Wellness Center, Triage, Drug Demand Reduction Program	1952	2016	44,858	62,291 (1.43)
5109	Temporary Lodging Facility	1967	2016	72,983	45,738 (1.05)
5110	Temporary Lodging Facility	1967	2016	72,740	
5111	Temporary Lodging Facility	1967	2015	50,277	
5112	Temporary Lodging Facility	1967	2015	97,487	91,912 (2.11)
5113	Temporary Lodging Facility	1967	2015	97,444	
5114	Family Support Center, Security Forces Squadron Military Family Housing Domestic Holding Area, Day Care	1967	2015	9,276	
5116	Temporary Lodging Facility	1967	2015	97,614	
Total				548,233	237,186 (5.45)

Note: * Area of land disturbance includes building footprint, pavements, sidewalks, and associated structures such as overhead covered parking, concrete ponds, fences, and other infrastructure.

2.2 No Action Alternative

2.2.1 Construct Temporary Lodging Facility

Under the No Action Alternative, Beale AFB would not construct a TLF. Without these new facilities, Beale AFB would be unable to provide adequate short-term temporary housing accommodations for military members and their dependents. The existing TLFs would continue to require excessive ongoing maintenance and would continue to deteriorate. Individuals with disabilities would not be able to access the existing two-story TLF units. In addition, limited funding would have to be used to continue

maintenance and upkeep of these facilities, diverting necessary funding away from other mission-essential functions. The No Action Alternative would not comply with USAF safety requirements.

2.2.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive. These bridges would continue to deteriorate and require continued reduction of maximum loads and an increase in the frequency of required inspections. If these bridges continue to deteriorate, it might be necessary to close them until corrective action is taken, which could impact transportation access and cause delays in mission-support functions. In addition, these bridges could eventually collapse or become unusable, and pose a health and safety risk to those traveling on Gavin Mandery Drive.

2.2.3 Implement the Base Demolition Plan

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the identified buildings would not be demolished. Beale AFB would have to use its limited funding to continue maintaining obsolete, deteriorating, and unused facilities. In addition, many of the buildings proposed for demolition have been identified as containing lead-based paint (LBP) and asbestos-containing materials (ACMs). Under the No Action Alternative, Beale AFB would have to continue to ensure the physical integrity of the outdated and unused buildings to prevent migration of LBP and ACMs into surrounding soil and groundwater. In addition, the No Action Alternative is considered unreasonable because it would prevent Beale AFB from meeting its prescribed goals and reducing the physical plant footprint pursuant to the “20/20 by 2020” initiative or making space available for future mission development.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

Beale AFB reviewed possible alternatives to the Proposed Action and eliminated some because they did not meet the selection standards outlined in **Section 2.1**.

2.3.1 Construct Temporary Lodging Facility

Beale AFB considered the following alternative sites for construction of the TLF project, which were dismissed from further detailed analysis.

- Beale AFB originally considered constructing a TLF and Visitor’s Quarters (VQ) Facility at the intersection of C Street and Warren Shingle Road. Collocating the TLF and the VQ would have been consistent with Beale AFB’s goal of consolidating similar land uses (Selection Standard #8). However, to fit both the TLF and the VQ on that same parcel, the TLF would have had to be a multi-story building. Multi-story TLFs have been more expensive to construct and maintain, and less desirable for the families who would eventually live in them (Selection Standard #3). The USAF also would prefer not to locate TLFs (housing families and children) close to other facilities that primarily support adults (e.g., dormitories, VQ Facilities, and administrative buildings) (Selection Standard #4). To ensure the safety of the families that stay in the TLF, the USAF attempts to limit traffic to and surrounding the TLFs to TLF residents and those who work at the TLFs to the maximum extent possible (Selection Standard #9). In addition, constructing the TLF and the VQ Facility on the same parcel would result in VQ Facility-related traffic using

the TLF parking area or parking access drives. Therefore, this alternative was eliminated from further detailed analysis in this EA.

- The second alternative considered constructing the TLF in the military housing area. However, this is an inconvenient location for families with limited transportation and it would limit access to on-installation shopping, dining, and community facilities (Selection Standard #8). Therefore, this alternative was eliminated from further detailed analysis in this EA.
- The third alternative considered constructing the TLF at the future site of the Fitness Center near the intersection of Doolittle Drive and C Street. This is a central location that could accommodate the TLF (Selection Standard #8); however, the USAF has already invested design funds for the fitness center at this location and the location is better suited for the fitness center (Selection Standard #10). The area is also too large for the TLF and is better suited for the size requirements of the fitness center (Selection Standard #10). Therefore, this alternative was eliminated from further detailed analysis in this EA.
- The fourth alternative considered constructing the TLF within the area identified for future development of Heritage Park near Doolittle Drive, A Street, and Warren Shingle Road. This location could accommodate the TLF; however, the USAF has invested design and environmental funds to develop this area as Heritage Park (Selection Standard #4 and #10). The site is also constrained by more environmental issues such as wetlands, floodplains, and threatened and endangered species (Selection Standard #12). The site currently proposed for the TLF would have the potential for fewer impacts on wetlands; therefore, this site was eliminated from further detailed analysis in this EA.

2.3.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

One alternative for the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive was identified, which was dismissed from further analysis. Beale AFB considered the alternative of repairing Bridges 2710 and 2720; however, both bridges have deteriorated to the point where repair is no longer feasible from an engineering or cost perspective (Selection Standards #3 and #13). For these reasons, repair of the bridges was dismissed from further analysis.

2.3.3 Implementation of the Base Demolition Plan

No alternatives to implementing the Base Demolition Plan were identified that would meet the purpose and need of the project and thus no alternatives were further considered and eliminated in this EA. The primary need for the project is to fulfill the USAF's "20/20 by 2020" goal, which directs USAF installations to reduce the physical plant it spends money on by 20 percent by the year 2020. Consolidation and demolition are the means by which Beale AFB can reduce its physical plant; thus, there are no alternatives available to meet the purpose and need of the project.

2.4 Summary of Impacts and Environmental Protection Measures

The specific criteria for evaluating potential environmental effects of the three proposed projects and their alternatives are presented under each resource area. Under NEPA, the significance of an action is measured in terms of its context and intensity. The following elaborates on characteristics used to relate various environmental effects. Individual resource area discussions provide more subject-specific evaluation criteria.

Short-term or long-term. In general, short-term effects are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term effects are those that are more likely to be persistent and chronic.

Direct or indirect. A direct effect is caused by an action and occurs around the same time at or near the location of the action. An indirect effect is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.

Minor, moderate, or significant. These relative terms are used to characterize the magnitude or intensity of an effect. A minor effect is slight, but detectable. A moderate effect is readily apparent. Significant effects are those that, in their context and due to their intensity (severity), have the potential to meet the NEPA thresholds for significance set forth in CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA.

Adverse or beneficial. An adverse effect is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment.

Table 2-5 presents a summary of the potential environmental impacts that could result from implementation of each of the three proposed projects and their alternatives, including the No Action Alternatives for each project. **Table 2-6** presents the Best Management Practices (BMPs) and environmental protection measures that Beale AFB and their contractors would comply with to minimize or eliminate impacts on environmental resources.

Table 2-5. Summary of Environmental Impacts

Project	Noise	Land Use and Planning	Air Quality and GHG Emissions	Health and Safety	Geology and Soils	Hydrology, Water Resources, and Water Quality	Biological Resources	Cultural Resources	Utilities, Service Systems, and Infrastructure	Transportation and Traffic	Hazardous Materials and Wastes
Construct Temporary Lodging Facility											
Temporary Lodging Facility	♦	+ LUC	♦	♦ ERP	■ ESCP	♦ 401/404	♦ ESA 7 VP	-	-, ♦, +	♦	♦ ERP
No Action Alternative	-	-	-	♦	-	-	-	-	♦	♦, +	-
Replace Bridges 2710 and 2720 on Gavin Mandery Drive											
Replace: Bridges 2710 and 2720	♦	-	♦	♦, + ERP	♦ ESCP	♦ 401/404	♦	-	-, ♦, +	♦	♦ ERP
No Action Alternative	-	-	-	♦	-	♦	-	-	♦	♦	-
Alternative 1: Replace Bridges 2710 and 2720 and Construct Temporary Bypass road											
Replace: Bridges 2710 and 2720 and Construct Temporary Bypass road	♦	-	♦	♦, + ERP	♦ ESCP	♦ 401/404	♦	-	-, ♦, +	♦	♦ ERP
Implement the Base Demolition Plan											
Building 355	♦	+ LUC	♦	♦ ERP	♦ + ESCP	-	♦	-	-, ♦, +	♦	-, + ERP, ACM, LBP
Building 1028	♦	+ LUC	♦	♦ ERP	♦ + ESCP	-	-	-	-, ♦, +	♦	♦, + ERP, ACM, LBP

Project	Noise	Land Use and Planning	Air Quality and GHG Emissions	Health and Safety	Geology and Soils	Hydrology, Water Resources, and Water Quality	Biological Resources	Cultural Resources	Utilities, Service Systems, and Infrastructure	Transportation and Traffic	Hazardous Materials and Wastes
Implement the Base Demolition Plan (continued)											
Building 2459	◆	+ LUC	◆	◆ ERP	◆ + ESCP	-	-	-	-, ◆, +	◆	◆, + ERP, ACM, LBP
Buildings 5109 to 5114 and 5116	◆	+ LUC	◆	◆	◆ + ESCP	-	-	-	-, ◆, +	◆	◆, + ACM, LBP
No Action Alternative	-	-	-	◆	◆	◆	-	-	◆	-	◆ ACM, LBP

Impact Legend:

-	No effects or negligible adverse effects	○	Potential major adverse effects
◆	Potential minor adverse effects	+	Potential beneficial effects
■	Potential moderate adverse effects		

Issue Key:

ACM	Asbestos-containing material	LBP	Lead-based paint
ERP	Environmental Restoration Program site	LUC	Change in land use category
ESA 7	Endangered Species Act Section 7 consultation	VP	Vernal pool habitat
ESCP	Erosion and Sediment Control Plan	401/404	401 water quality certification and 404 permit

Table 2-6. Best Management Practices and Environmental Protection Measures

Resource	Environmental Protection Measures
Noise (Section 3.1.4)	Measure 1: Minimization of Construction, Repair, and Demolition Noise. Construction and demolition activities would be restricted to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.), all equipment would be properly maintained; and, when feasible, equipment exhaust mufflers would be used.
Land Use (Section 3.2.4)	No environmental protection measures are required.
Air Quality and GHG Emissions (Section 3.3.4)	Measure 1: Fugitive Dust Control. Contractors would be required to follow Feather River Air Quality Management District (FRAQMD) fugitive dust-control measures as specified in Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land Use Projects Under CEQA (FRAQMD 2010a) and Functioning of the Mendocino County Air Quality Management District (MCAQMD) Indirect Source Rule. Fugitive dust-control measures as outlined by FRAQMD and MCAQMD include wind breaks and barriers, frequent water applications, application of soil additives, control of vehicle access and flow routes, vehicle speed restrictions, covering of piles, use of gravel at site exit points, washing of equipment at the end of each work day and prior to site removal, reestablishing ground cover, and work stoppage. The mitigation measures used in the Urban Emissions Model (URBEMIS) for fugitive dust control include the following for fine and mass grading: • Soil-stabilizing measures, such as replacing ground cover in disturbed areas as quickly as possible; watering exposed surfaces two times daily; and minimizing the free fall distance of soil during equipment loading/unloading activities • Unpaved road measures to include managing haul road dust by watering these roads two times daily. Measure 2: Construction and Demolition Equipment Emission Controls. Construction and demolition equipment exhaust emissions would not exceed FRAQMD Regulation II, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringlemann 2.0) and PCAPCD Regulation 2, Rule 202, Visible Emissions limitations (Ringlemann 1.0 or equivalent opacity). All construction and demolition equipment would be properly tuned and maintained prior to and for the duration of the Proposed Action. In addition, construction equipment and vehicles would reduce idling times to 5 minutes or less when possible. The mitigation measures used in the URBEMIS model for construction and demolition equipment emissions controls include the following for demolition, grading, trenching, paving, and building construction: • Construction and demolition equipment would use diesel particulate filters. • Construction and demolition equipment would use diesel oxidation catalysts. Measure 3: Power Sources. The Proposed Action would use existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. Measure 4: Speed Limits. All vehicle operators will follow the posted speed limit on paved roads and a 15-mile-per-hour speed limit on unpaved roads.

Resource	Environmental Protection Measures
Health and Safety (Section 3.4.4)	Measure 1: Ground Safety Requirements and Coordination. All contractors performing construction and demolition activities at Beale AFB are responsible for following ground safety regulations and worker compensation programs. In addition, all contractors are required to conduct construction and demolition activities in a manner that does not pose any risk to its workers or installation personnel. An industrial hygiene program would address exposure to hazardous materials, use of personal protective equipment (PPE), and the availability of material data safety sheets (MSDSs). Industrial hygiene is the responsibility of contractors, as applicable. Measure 2: Munitions and UXO Advisory. If any suspected military munitions or unexploded ordnance (UXO) are found during construction and demolition activities, work would stop in the area, personnel would move away from the site, and the Beale AFB Explosive Ordnance Disposal (EOD) Flight and Safety Office would be contacted. Measure 3: Health and Safety Plan and ERP Waiver Coordination. Although there is a low likelihood for construction workers to be exposed to contamination from Environmental Restoration Program (ERP) sites during construction or demolition, it is recommended that a health and safety plan be prepared by the contractor in accordance with Occupational Safety and Health Administration (OSHA) requirements prior to commencement of construction or demolition activities proximate to ERP sites. Should contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and Beale AFB programs and procedures. Workers at the ERP sites identified in this EA would either have OSHA 40-hour Hazardous Waste Operations and Emergency Response training, or a supervisor would have OSHA Site Supervisor certification. Current site-specific information about contamination, underground storage tank (UST) sites, and ERP infrastructure on and around each project site would be obtained prior to construction or demolition activities, and site-specific health and safety plans would be prepared. Project planning would include protection of ERP infrastructure such as monitoring wells, treatment systems, and conveyance pipes to avoid disruption of clean-up activities. Prior to the commencement of any construction involving an ERP site, a waiver request would be submitted to HQ ACC for approval. If contaminated material is encountered during construction and demolition activities, work would be halted in the area and the Beale AFB ERP Office would be contacted. Measure 4: Road Closure Coordination. Beale AFB would coordinate with Beale AFB Security Forces regarding road and lane closures and appropriate signage prior to commencement of any construction activities.
Geology and Soils (Section 3.5.4)	Measure 1: Integrated Contingency Plan Best Management Practices. Implementation of BMPs identified in the Integrated Contingency Plan (ICP) would minimize the potential for and extent of contamination from accidental spills. Additionally, implementation of BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from storm water runoff would be followed to reduce the potential for soil erosion. Standard erosion-control measures (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) would reduce adverse impacts associated with construction and demolition activities.

Resource	Environmental Protection Measures
Water Resources (Section 3.6.4)	Measure 1: Best Management Practices. The contractor would adhere to BMPs and applicable codes and ordinances to reduce storm water runoff-related impacts on wetlands or vernal pools that are located within 250 feet, or have a hydrologic connection to the project sites. Construction vehicles and equipment would be prohibited off-road, outside designated work areas. In addition, all construction vehicles would be fueled and serviced in designated service areas and vehicles would observe the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads. Erosion-control BMPs in accordance with the Beale AFB Storm Water Pollution Prevention Plan (SWPPP) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. All soil excavated in jurisdictional waters of the United States would be removed and disposed of by the contractor outside the project area. Coordination with the Beale AFB Environmental Office is required prior to disposing of this excavated soil. Measure 2: Exclusionary Period. No work will be conducted within 250 feet of vernal pools between November 1 and May 1, unless specifically approved by the Beale AFB environmental office. Measure 3: Erosion Control. All wetlands, drainages, and vernal pools will have erosion-control measures (e.g., straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment or construction workers access those protected areas.
Biological Resources (Section 3.7.4)	General Measures General Measure 1: Preconstruction Surveys. A U.S. Fish and Wildlife Service (USFWS) approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species are present prior to the start of construction. These surveys will be conducted 2 weeks prior to the start of construction activities in any sensitive habitat. If any federally listed species are found during the preconstruction surveys, the USFWS-approved biologist will contact the USFWS to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys. No project activities will begin until proponents have received written approval from the USFWS that the biologist(s) is qualified to conduct the work. General Measure 2: Construction Monitoring. A USFWS-approved biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with the avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the USFWS-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biological monitor exercises this authority, he/she must notify the USFWS by telephone and letter within one working day.

Resource	Environmental Protection Measures
Biological Resources (Section 3.7.4) (continued)	General Measure 3: Environmental Awareness Training. Environmental awareness training will be provided for all construction personnel working on Beale AFB. Training will be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program will consist of a briefing on environmental issues relative to the proposed project. Training will be conducted by a USFWS-approved biologist. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that occurs in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Endangered Species Act (ESA), including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies. General Measure 4: Invasive Species. A USFWS-approved biological monitor will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive exotic plants identified in the project area will be removed. General Measure 5: USFWS Notification. Beale AFB will track the areas of impact resulting from the Proposed Action and will submit a report to the USFWS summarizing these acreages on a project-by-project basis. General Measure 6: Erosion Control. All wetlands, drainages, and vernal pools, if present, will have erosion-control measures (e.g., straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment or construction workers access those protected areas. General Measure 7: Reseeding. All areas of ground disturbance or exposed soil will be reseeded with a native "weed free" seed mix approved by the Beale AFB Environmental Office. General Measure 8: Exclusionary Period. No work will be conducted within 250 feet of vernal pools and streams between 1 November and 1 May, unless specifically approved by the Beale AFB Environmental Office who will field-verify soil saturation, visual ponding, and expected surface disturbance. The USFWS will be notified of any work approved between 1 November and 1 May. General Measure 9: Demarcation of Sensitive Areas. Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (i.e., vernal pool branchiopods) will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an environmentally sensitive area. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion. General Measure 10: Off-Road Travel. Off-road travel outside of the demarcated construction boundaries will be prohibited.

Resource	Environmental Protection Measures
Biological Resources (Section 3.7.4) (continued)	General Measure 11: Demarcation of Work and Staging Areas. Beale AFB (or the contractor to Beale AFB) will provide all materials to stake and flag boundaries of the work area. Beale AFB will coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans, valley elderberry longhorn beetle, giant garter snake, or their habitat. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. General Measure 12: Report Kills/Injuries. Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform the 9th Civil Engineer Squadron, Environmental Element (9 CES/CEIE). The 9 CES/CEIE will verbally notify the Sacramento Fish and Wildlife Office within 3 days and will provide written notification of the incident within 5 days. General Measure 13: Fueling and Servicing in Designated Areas. Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. General Measure 14: Garbage Removal. During construction activities, each day all trash that could attract predators will be properly contained, removed from the work site and disposed. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion. General Measure 15: Disposal of Excavated Soil. All soil excavated during construction occurring near vernal pool wetlands will be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil. General Measure 16: Minimization of Access Routes and Other Areas. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and those areas will be outside of wetland/drainage areas. General Measure 17: Speed Limits. All vehicle operators will follow the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads. General Measure 18: Prohibited Items. No pets or non-military firearms will be allowed in the project area. General Measure 19: Pesticide/Herbicide Use. The USFWS must approve any pesticide or herbicide use for projects that could affect Federal-listed species. If pesticides and herbicides are used at the project site, Beale AFB will ensure that label restrictions, and other restrictions mandated by the U.S. Environmental Protection Agency (USEPA) and the California Department of Food and Agriculture are observed. General Measure 20: Trenches. No trenches will be left open at the end of the day; trenched areas will be compacted and restored to normal grade. Excavated trenches will be revegetated.

Resource	Environmental Protection Measures
Biological Resources (Section 3.7.4) (continued)	Measures for Vernal Pool Crustaceans Vernal Pool Measure 1: Best Management Practices. BMPs will be implemented to prevent sediment from entering vernal pools that are located within 250 feet, or have a hydrologic connection to the project site, including the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal. Vernal Pool Measure 2: Biological Monitor. A USFWS-approved biologist from 9 CES/CEIE will monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the Proposed Action. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources. Vernal Pool Measure 3: Environmental Awareness Training. A USFWS-approved biological monitor from 9 CES/CEIE will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the project sites. Awareness training will cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and will include the penalties for violating the provisions of the Act. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews. Vernal Pool Measure 4: Demarcating Habitat. Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor. Vernal Pool Measure 5: Work and Staging Boundaries. All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool areas. Vernal Pool Measure 6: Dust Control. All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools. Measures for Other Wildlife Wildlife Measure 1: Timing of Construction Activities. All building demolition, vegetation clearing, or tree removal would occur outside of the bird breeding season, as appropriate. To avoid disturbances to potential nesting birds, a survey would be conducted prior to any construction or demolition activities. If nesting birds are present, nests would be flagged and avoided to the maximum extent possible. Standard mitigation procedures in conformance with the Migratory Bird Treaty Act (MBTA) would be implemented should it be necessary to relocate birds during demolition. Wildlife Measure 2: Bat Surveys and Exclusion. Buildings identified for demolition would be inspected by a biologist experienced in locating bats and bat colonies before the start of demolition or construction activities. If a bat colony is found, then demolition would be delayed until appropriate, non-lethal exclusion can be conducted. Maternity colonies would be excluded after young bats are volant. Overwintering bats would be excluded when the weather warmed and the bats become active once again.

Resource	Environmental Protection Measures
Biological Resources (Section 3.7.4) (continued)	Wildlife Measure 3: Burrowing Owl Surveys. Preconstruction surveys would be conducted following the California Burrowing Owl Consortium survey protocol and mitigation guidelines (CBOC 1993).
Cultural Resources (Section 3.8.4)	Measure 1: Cultural Resources Awareness Training. All construction and demolition personnel would receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources. This training would address Federal, state, and local laws regarding cultural resources; the importance of these resources and the purpose and necessity of protecting them; and the appropriate methods for reporting and protecting inadvertently discovered cultural resources. Measure 2: Inadvertent Discovery of Archaeological Resources. In the event that human remains, artifacts, or other archaeological materials are discovered during the course of any action, project, or activity at Beale AFB, all ground-disturbing activity at the point of discovery, within a reasonable buffer exclusionary area, must be halted and the Cultural Resources Manager notified. Any inadvertent discovery would be assumed to be potentially eligible for the NRHP and afforded appropriate protection until it is determined to be otherwise.
Utilities and Infrastructure (Section 3.9.4)	Measure 1: Storm Drainage. Every effort would be made to preserve or restore the pre-project local hydrology to minimize the adverse impacts of increased storm water volume or velocity. These measures include realigning existing swales and drainage ditches, minimizing impervious and compacted surfaces, landscaping, and the creation of new drainage features to mitigate storm water flow.
Transportation (Section 3.10.4)	See Health and Safety Measure 4: Road Closure Coordination (see Section 3.4.4).
Hazardous Materials and Wastes (Section 3.11.4)	Measure 1: Handling and Disposal of Hazardous Materials and Wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with Beale AFB's: Hazardous Materials Management Plan (HMMP); Asbestos Management and Operating Plan; Hazardous Waste Management Plan; LBP Management and Operating Plan; and all Federal, state, and local rules and regulation. Measure 2: Contamination. If contamination is encountered during construction and demolition activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations. Groundwater would be tested to ensure it is not contaminated prior to use. Measure 3: Pollution Prevention. Operations associated with the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition. Adherence with the Beale <i>Pollution Prevention Management Action Plan</i> (P2MAP) would ensure that pollution prevention goals are met.

Resource	Environmental Protection Measures
Hazardous Materials and Wastes (Section 3.11.4) (continued)	Measure 4: Asbestos and LBP Mitigation. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the Asbestos and LBP Management and Operating Plans and all Federal, state, and local rules and regulations. Any ACM impacted as a result of asbestos-cement water supply lines, which could be encountered when connecting to existing water lines, would be handled in accordance with the Asbestos Management and Operating Plan and all Federal, state, and local rules and regulations.

3. Affected Environment and Environmental Consequences

3.1 Noise

3.1.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one's ears or as annoying noise. Affected sensitive receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Metrics and Regulations. Although human response to noise varies, measurements can be calculated with instruments that record instantaneous sound levels in decibels. A-weighted decibels (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally in the region of 135 dBA (USEPA 1981a). **Table 3-1** compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10 dBA increase seems twice as loud (USEPA 1981b).

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
10	Just audible	Negligible*
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying Hearing damage (8 hours)
100	Garbage truck	Very annoying*
110	Pile drivers	Strained vocal effort*
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: USEPA 1981b and *HDR extrapolation

Federal Regulations. Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed to is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

Sound levels, resulting from multiple single events, are used to characterize noise effects from aircraft or vehicle activity and are measured in Day-Night Average Sound Level (DNL). The DNL noise metric incorporates a “penalty” for nighttime noise events to account for increased annoyance. DNL is the energy-averaged sound level measured over a 24-hour period, with a 10-dBA penalty assigned to noise events occurring between 10:00 p.m. and 7:00 a.m. DNL values are obtained by averaging sound exposure levels over a given 24-hour period. DNL is the designated noise metric of the Federal Aviation Administration, U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency (USEPA), and DOD for modeling airport environments.

According to the USAF, the Federal Aviation Administration, and the U.S. Department of Housing and Urban Development criteria, residential units and other noise-sensitive land uses are “clearly unacceptable” in areas where the noise exposure exceeds 75 dBA DNL, “normally unacceptable” in regions exposed to noise between 65 and 75 dBA DNL, and “normally acceptable” in areas exposed to noise of 65 dBA DNL or under. The Federal Interagency Committee on Noise developed land use compatibility guidelines for noise in terms of a DNL sound level (FICON 1992). For outdoor activities, the USEPA recommends 55 dBA DNL as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (USEPA 1974).

The Air Installation Compatible Use Zone (AICUZ) Program, (AFI 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near USAF installations.

State Regulations. In the State of California, noise from aircraft operations is assessed using the daily average metric, Community Noise Equivalent Level (CNEL) (Caltrans 2012). CNEL is similar to DNL in that it measures the A-weighted average of sound levels gathered throughout a 24-hour period. However, in addition to the 10 dBA penalty assigned to events that occur between the hours of 10:00 p.m. and 7:00 a.m., there is a 5 dBA penalty assigned to events that occur between the hours of 7:00 p.m. and 10:00 p.m. The additional penalty takes into account that community members are normally the most sensitive to noise during night hours and are more sensitive to noise during evening hours than during the daytime.

Local Regulations. Beale AFB is in Yuba County. The Yuba County Code of Ordinances has noise regulations regarding construction. These regulations state that it is unlawful to perform outside construction work on structures or operate a construction type device (e.g., pile driver or power shovel) within a residential zone, or within a radius of 500 feet from a residential zone, between the hours of 10:00 p.m. and 7:00 a.m. unless a permit has been obtained (Yuba County 2012).

Construction Sound Levels. Building demolition and construction work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, pavers, and other work equipment. **Table 3-2** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

Table 3-2. Predicted Noise Levels for Construction Equipment

Construction Equipment	Predicted Noise Level at 50 feet (dBA)	Construction Equipment	Predicted Noise Level at 50 feet (dBA)
Backhoe	72 to 93	Jackhammer	81 to 98
Concrete mixer	74 to 88	Paver	86 to 88
Crane	75 to 87	Pile driver	95 to 105
Front loader	72 to 83	Roller	73 to 75
Grader	80 to 93	Truck	83 to 94

Source: USEPA 1971

3.1.2 Existing Conditions

The ambient noise environment around Beale AFB is affected mainly by military aircraft operations and automobile traffic. Military operations that impact the noise environment can also include weapons training and aircraft maintenance activities. **Figure 3-1** demonstrates the proposed project construction sites within the existing Beale AFB noise contours.

Beale AFB is equipped with the nation's fleet of U-2, RQ-4 Global Hawk, and MC-12 Liberty reconnaissance aircraft and associated support equipment. AICUZ studies present noise contours associated with aircraft operation, and land use compatibility. The Beale AFB AICUZ study was updated in 2005. The 2005 AICUZ was initiated as a result of changes in aircraft types and numbers of operations at the installation.

Vehicle use associated with military operations at Beale AFB consists of passenger and military vehicles and delivery and fuel trucks. Passenger vehicles compose most of the vehicles present at Beale AFB and the surrounding community roadways. Considering the military aircraft operations and vehicle traffic at and adjacent to Beale AFB, the ambient sound environment around Beale AFB resembles an urban atmosphere.

3.1.3 Environmental Consequences

Noise impact analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the acoustical environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., if the total number of sensitive receptors exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level). Projected noise effects were evaluated qualitatively for the alternatives considered.

Overall Construction Impacts. Implementation of the proposed projects would be expected to result in short-term, minor, adverse effects on the noise environment from equipment that would be used during demolition, construction, and repair activities. The proposed projects would be implemented at different times and locations over the next 4 years. It is possible that several projects would occur simultaneously but would not be expected to result in significant adverse effects.

Projects under the Proposed Action and alternatives would require grading, paving, demolition, and building construction. All of the proposed projects would occur on Beale AFB. The proposed projects

are spread out across the installation and region. Populations several hundred feet from the construction sites could be exposed to noise levels of approximately 66 to 72 dBA. Populations adjacent to the sites, including military personnel and their dependents, could be exposed to levels of approximately 82 to 94 dBA. There are no residences or other off-installation noise-sensitive land uses adjacent to the proposed project sites.

Individual equipment used for demolition, construction, and repair activities would be expected to result in noise levels comparable to those shown in **Table 3-2**. Noise from demolition and construction activities varies depending on the type of equipment being used, the area that the action would occur in, and the distance from the noise source. To predict how these activities would impact adjacent populations, noise from the probable equipment was estimated. For example, as shown in **Table 3-2**, construction and demolition (i.e., clearing and grading) usually involves several pieces of equipment (e.g., bulldozers and trucks) that can be used simultaneously. Under the Proposed Action and alternatives, the cumulative noise from the equipment, during the busiest day, was estimated to determine the total impact of noise from construction and demolition activities at a given distance. Examples of expected cumulative demolition and construction noise during daytime hours at specified distances are shown in **Table 3-3**. These sound levels were estimated by adding the noise from several pieces of equipment and then calculating the decrease in noise levels at various distances from the source.

Table 3-3. Estimated Noise Levels from Construction and Demolition Activities

Distance from Noise Source	Estimated Noise Level
50 feet	90 to 94 dBA
100 feet	84 to 88 dBA
150 feet	81 to 85 dBA
200 feet	78 to 82 dBA
400 feet	72 to 76 dBA
800 feet	66 to 70 dBA
1,200 feet	< 64 dBA

Given the extent of the projects associated with the Proposed Action and alternatives, and the proximity to receptors on the installation, short-term, minor, adverse effects from construction noise would be expected. However, noise generation would last only for the duration of demolition and construction activities and could be minimized through measures such as the restriction of these activities to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.), construction equipment would be properly maintained, and, when feasible, equipment exhaust mufflers would be used. It is not anticipated that the short-term increase in noise levels resulting from the Proposed Action and alternatives would cause significant adverse effects on the surrounding populations. Specific impacts on noise from construction of the Proposed Action and alternatives are discussed under each project alternative.

Overall Operational Impacts. The three proposed projects do not have operational activities that would increase ambient noise levels and would not result in long-term effects on the noise environment. Specific impacts on noise from operation of the Proposed Action and alternatives are discussed following each project alternative.

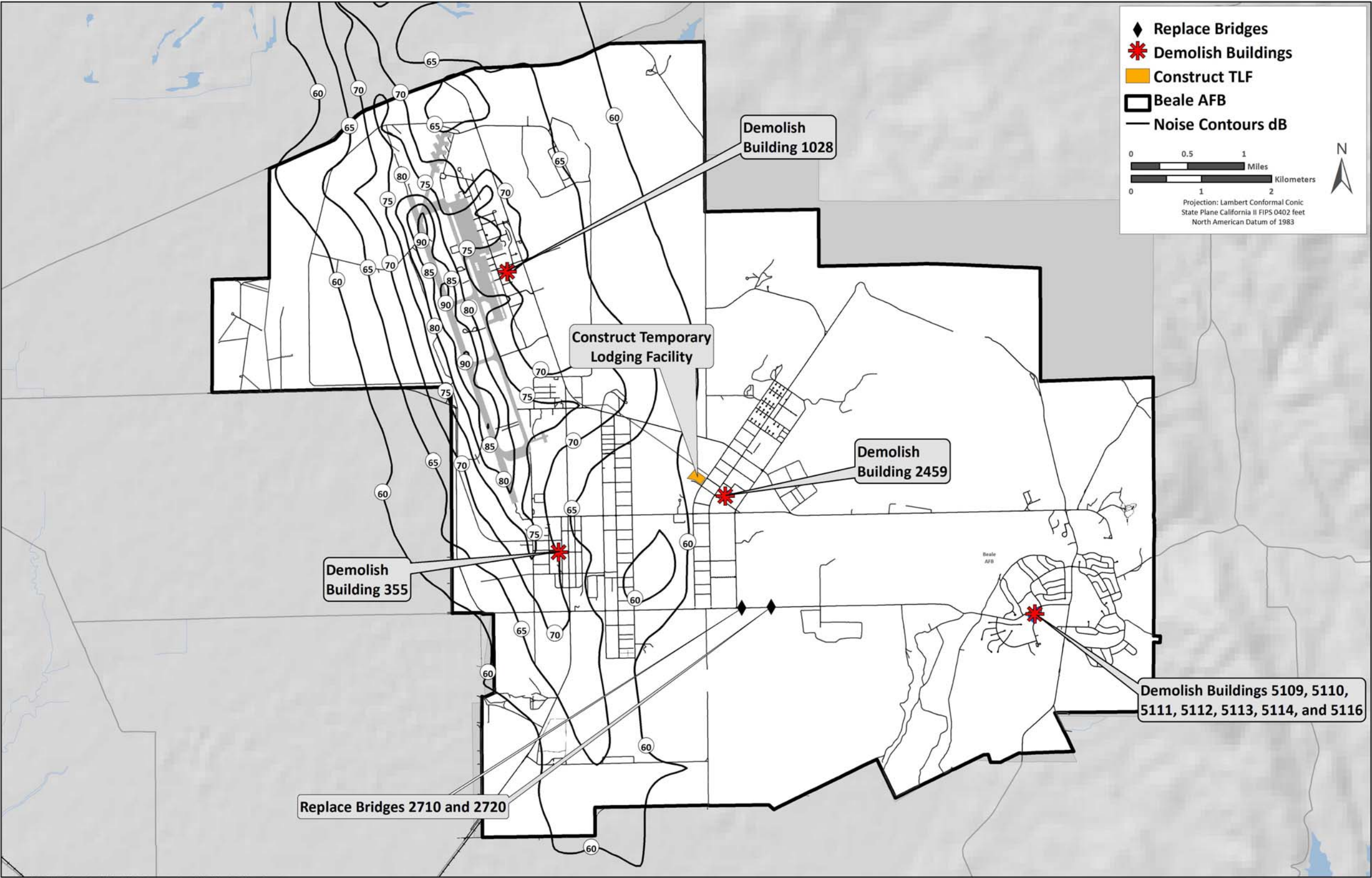


Figure 3-1. Aircraft Operations Related Noise Contours at Beale AFB

3.1.3.1 Construct Temporary Lodging Facility

3.1.3.1.1 *Proposed Action*

Short-term, minor, adverse effects on the noise environment would be expected from construction of the TLF under the Proposed Action.

The land use surrounding the proposed site includes open space, outdoor recreation, operations and maintenance, community service, and administrative. Adjacent parcels to the south and east are built-out. Construction of the TLF would be approximately 90 to 370 feet from existing operations and maintenance, and administrative buildings. Populations would be exposed to noise levels of approximately 84 to 89 dBA 90 feet from the proposed construction site and 73 to 77 dBA from 370 feet away. Noise generation would be short-term and intermittent lasting only for the duration of the construction activities. Operation of the proposed TLF would not generate noise that is different from normal installation levels. Therefore, construction and operation of the TLF would not result in long-term effects on the noise environment.

Summary. Construction and operational activities associated with the Proposed Action would not have a significant impact on the ambient noise environment.

3.1.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.1.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct a TLF and the noise environment would not change from existing conditions. Therefore, no direct or indirect, adverse impacts would be expected on the noise environment from implementation of the No Action Alternative.

3.1.3.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

3.1.3.2.1 *Proposed Action*

Short-term, minor, adverse effects on the noise environment would be expected from the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive. The land use surrounding the proposed construction sites include open space and outdoor recreation. The nearest on-installation inhabited facility is more than 1,200 feet from the proposed sites. Estimated noise levels could reach 62 to 67 dBA during the proposed bridge replacement. However, these noise levels would be short-term and intermittent lasting only for the duration of construction activities. Operation of the proposed replacement bridges is not anticipated to increase noise levels. Traffic would return to previous levels and would not result in long-term effects on the noise environment.

Summary. Construction and operational activities associated with the Proposed Action would not have a significant impact on the noise environment.

3.1.3.2.2 Alternatives

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Estimated noise levels associated with Alternative 1 would be similar to those described under the Proposed Action. Estimated noise levels could reach 62 to 67 dBA during the proposed bridge replacement and construction of the temporary bypass road. However, these noise levels would be short-term and intermittent lasting only for the duration of construction activities. Operation of the proposed replacement bridges is not anticipated to increase noise levels. Traffic would return to previous levels and would not result in long-term effects on the noise environment.

3.1.3.2.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive and the local and regional noise environment would not change from existing conditions. Therefore, no direct or indirect, adverse impacts would be expected on the noise environment from implementation of the No Action Alternative.

3.1.3.3 Implement the Base Demolition Plan

3.1.3.3.1 Proposed Action

Short-term, minor, adverse effects on the noise environment would be expected from implementation of the Base Demolition Plan at Beale AFB.

Building 355. Short-term, minor, adverse effects on the noise environment would be expected from the demolition of Building 355 under the Proposed Action. Land use at the demolition site is administrative. The closest facility is more than 400 feet from Building 355. Noise levels are estimated to be between 72 and 76 dBA. However, noise generation would be short-term and intermittent lasting only for the duration of demolition activities.

Building 1028. Short-term, minor, adverse effects on the noise environment would be expected from the demolition of Building 1028 under the Proposed Action. Land use at the demolition site is community commercial. The closest facility is approximately 95 feet from Building 1028. Noise levels are estimated to be between 84 and 89 dBA. However, noise generation would be short-term and intermittent lasting only for the duration of demolition activities.

Building 2459. Short-term, minor, adverse effects on the noise environment would be expected from the demolition of Building 2459 under the Proposed Action. Land use at the demolition site is community service. Building 2469 less than 50 feet from Building 2459, Building 25504 is approximately 130 feet, and Building 2434 is approximately 200 feet from Building 2459. Noise levels are estimated to be between 90 and 94 dBA at Building 2469, between 82 and 86 dBA at Building 25504, and between 78 and 82 dBA at Building 2434. However, noise generation would be short-term and intermittent lasting only for the duration of demolition activities.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. Short-term, minor, adverse effects on the noise environment would be expected from the demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. Land uses at the demolition sites are housing unaccompanied and community service. The closest facility is more than 400 feet from the demolition sites. Noise levels are estimated to be between 72 and 76 dBA. However, noise generation would be short-term and intermittent lasting only for the duration of demolition activities.

Summary. Demolition actions associated with the Proposed Action would not have a significant impact on the noise environment.

3.1.3.3.2 *Alternatives*

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.1.3.3.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the identified buildings would not be demolished. Noise levels would not change from existing conditions; therefore, no direct or indirect, adverse impacts would be expected on the noise environment from implementation of the No Action Alternative.

3.1.4 Environmental Protection Measures

Measure 1: Minimization of Construction, Repair, and Demolition Noise. Construction, repair, and demolition activities would be restricted to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.), all equipment would be properly maintained, and, when feasible, equipment exhaust mufflers would be used.

3.2 Land Use

3.2.1 Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, a conservation or preservation area, and a natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational. USAF installation land use planning commonly uses 12 general land use classifications: Airfield, Aircraft Operations and Maintenance, Industrial, Administrative, Community (Commercial), Community (Service), Medical, Housing (Accompanied), Housing (Unaccompanied), Outdoor Recreation, Open Space, and Water (USAF 1998).

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. According to Air Force Pamphlet 32-1010, *Land Use Planning*, land use planning is the arrangement of compatible activities in the most functionally effective and efficient manner (USAF 1998). The highest and best uses of real property are obtained when compatibility among land uses fosters societal interest. Tools supporting land use planning within the civilian sector include written master plans/management plans, policies, and zoning regulations. The USAF comprehensive planning process also uses functional analysis, which determines the degree of connectivity among installation land uses and between installation and off-installation land uses, to determine future installation development and facilities planning.

In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors

include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

3.2.2 Existing Conditions

Beale AFB is in Yuba County, California, on 23,192 acres of land in the transition zone between the agricultural lands of the Sacramento Valley and the foothills of the western slope of the Sierra Nevada Mountains.

Surrounding Off-Installation Land Use

Beale AFB is in a rural setting and the majority of the land adjacent to the installation is used for agriculture and grazing. There are large tracts of “important farmland” to the west and south of the installation (Beale AFB 2008). Important Farmland is land that has the characteristics (i.e., soil quality and land use) to sustain long-term agricultural production or is of importance to the local economy (California DOC 2007).

Other land uses surrounding Beale AFB include industrial mining, recreation, and low-density residential land uses (Beale AFB 2008, Beale AFB 2011a). Land north of the installation is mainly used for industrial mining. As identified in the California Surface Mining and Reclamation Act of 1975, significant Portland Cement Concrete-grade aggregate deposits are present in the Yuba Goldfields, a valley on both sides of the Yuba River, just north of the Beale AFB airfield. As a result, the area has been classified as a Mineral Resource Zone 2 and access to the aggregate has been protected (Beale AFB 2008). Much of the Yuba Goldfields are privately owned by Western Aggregates with the remainder being owned or managed by the Bureau of Land Management, the U.S. Army Corps of Engineers (USACE), and small private owners (Beale AFB 2011a, BLM 2002). The Spencerville Wildlife Area, an open space area managed by the State of California, is east of the installation, and provides picnicking, fishing, hunting, and hiking (Beale AFB 2008, Beale AFB 2011a). Rapid growth and the high cost of housing in the Sacramento area have contributed to a recent increase in development in Yuba County (Beale AFB 2011b). Scattered low-density residential uses are west of Beale AFB and in the community of Camp Far West, southeast of the installation. River Highlands Community, north-northeast of Beale AFB, is a rural residential development; however, most land directly adjacent to the installation is undeveloped.

On-Installation Land Use

Beale AFB has three geographically separate built-up (functional) areas, including the flightline, the Main Base, and the housing area. The flightline consists of the airfield and associated uses and is in the northwestern portion of the installation. The Main Base, which is in the center of the installation, contains the support organizations and administrative functions of many of the flightline operations that are not directly related to flying. The land uses in the Main Base include administrative, community, industrial, unaccompanied housing, and recreation uses. The housing area, which is primarily accompanied housing, is in the southeastern portion of the installation. There are 13 identified land use categories at Beale AFB: Administrative, Airfield, Aircraft Operations and Maintenance, Space Surveillance, Industrial, Community Commercial, Community Service, Housing Accompanied, Housing Unaccompanied, Medical, Open Space, Outdoor Recreation, and Water (see **Figure 3-2**) (Beale AFB 2008).

Beale AFB leases several areas under its jurisdiction for grazing and cropland management, although dryland farming on the installation has been considered unprofitable and most crop areas have been converted to pastures for grazing. Approximately 12,000 acres, consisting of most of the installation except for the flightline, Main Base, housing area, and the southern portion of the installation, are

available for grazing (Beale AFB 2008). **Table 3-4** identifies the land use categories within each proposed project. Some of the projects occur in multiple land use categories.

Table 3-4. Land Use Categories Associated with the Proposed Action and Alternatives

Project	Land Use Category
Construct Temporary Lodging Facility	Open Space
Replace Bridges 2710 and 2720 on Gavin Mandery Drive	Open Space and Outdoor Recreation
Implement the Base Demolition Plan	Housing Accompanied and Community Commercial

Sources: Beale AFB 2008, Beale AFB 2011a

There are numerous explosive safety zones in the northern and southern portions of the installation; however, none of the proposed projects or alternatives are within quantity-distance (QD) arcs. These explosive safety zones, or QD arcs, are imaginary predetermined distances surrounding potential explosive sites in which land use restrictions are established to limit damage in the unlikely event of a mishap. QD arcs are determined based on the types and amounts of explosives stored within the safety arcs (Beale AFB 2008). See **Section 3.4** for more information on safety at Beale AFB.

Proposed projects would occur within four and adjacent to four Environmental Restoration Program (ERP) sites at Beale AFB; however, no land use controls are identified for the ERP sites at or near the proposed projects (Beale AFB 2007a). No Military Munitions Restoration Program (MMRP) sites overlap or are adjacent to the proposed project sites at Beale AFB. None of the proposed project locations are within any QD arcs at Beale AFB. See **Sections 3.4** and **3.11** for more information on the ERP and MMRP sites near the three proposed projects and their alternatives.

3.2.3 Environmental Consequences

The significance of potential land use effects is based on the level of land use sensitivity in areas affected by a proposed action and the compatibility of a proposed action with existing conditions. A proposed action could have a significant effect with respect to land use if any of the following were to occur:

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

Overall Construction Impacts. Implementation of the Proposed Action would result in short-term, negligible to minor, adverse effects on land use. As applicable, land use categories would be changed to reflect the new use of the land and would be consistent with the land use policies specified in the Beale AFB General Plan (Beale AFB 2008). The Proposed Action would not preclude the viability of existing surrounding land uses. The proposed project locations are within four ERP sites; however, they would not violate any land use controls. The proposed locations would not be constructed within any QD arcs or MMRP sites. The proposed project would not conflict with planning criteria established to ensure the protection of health and safety.

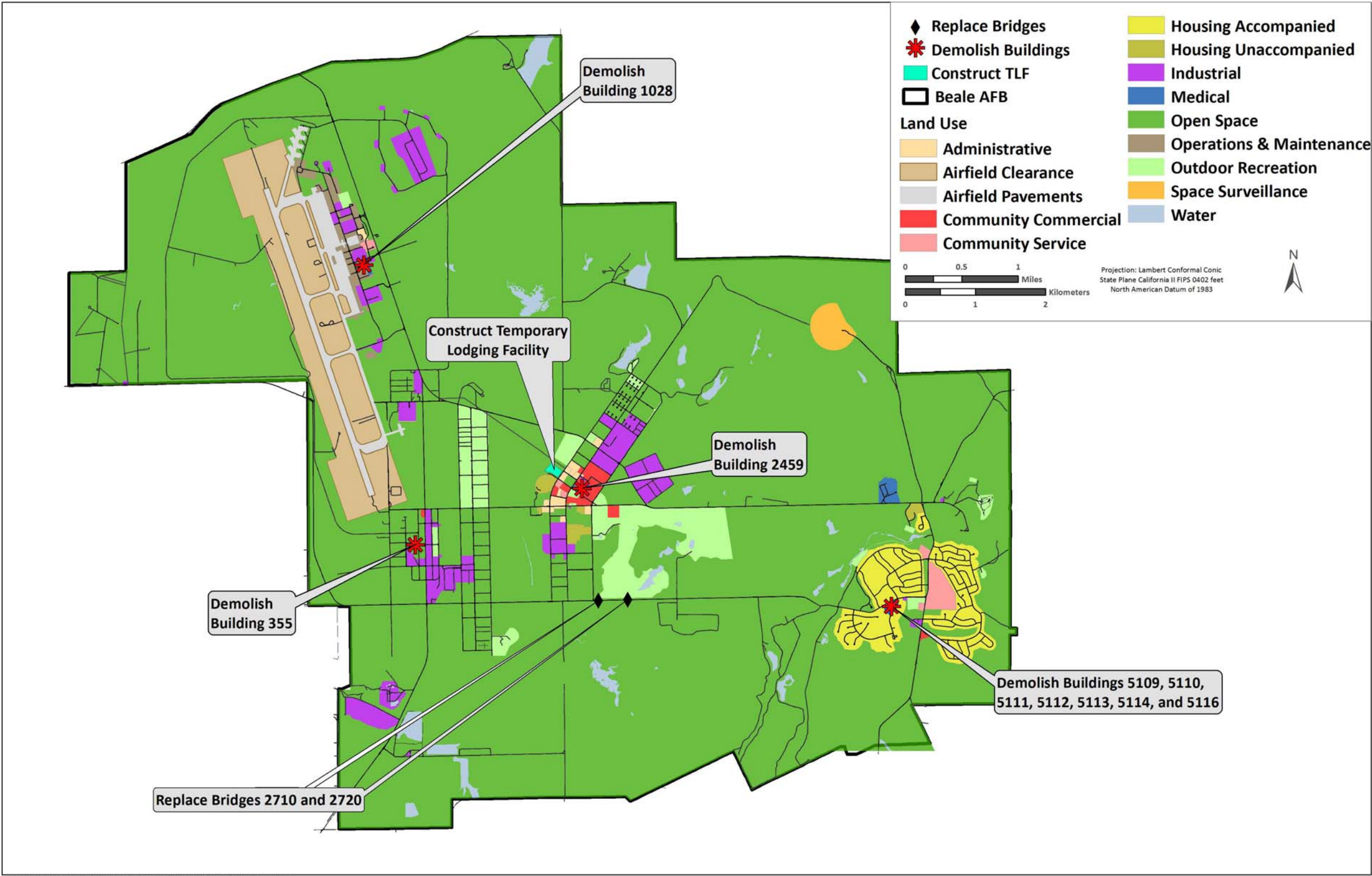


Figure 3-2. Land Uses at Beale AFB

Overall Operational Impacts. Long-term, beneficial effects on land use would result under the Proposed Action from the removal of old, outdated, inadequate facilities, which would create more space for mission-related land uses in the future, as needed. Long-term, beneficial impacts on land use would result from locating compatible land uses in close proximity to one another (i.e., Housing Unaccompanied, Administrative, Community Service, and Community Commercial).

3.2.3.1 Construct Temporary Lodging Facility

3.2.3.1.1 *Proposed Action*

Short-term, negligible to minor, adverse effects on land use would be expected from the construction of the TLF. The proposed location of the TLF would be entirely within open space and adjacent to an administrative area. Following construction, the area would be categorized as Housing Accompanied or Housing Unaccompanied. Following this change, the Proposed Action would be consistent with the land use policies specified in the Beale AFB General Plan (Beale AFB 2008). Long-term, minor, beneficial effects on land use would be expected from locating compatible land uses in close proximity to one another (i.e., Housing Unaccompanied, Administrative, Community Service, and Community Commercial). This project would be constructed within ERP Site ST-22 and would not be constructed within any QD arcs or MMRP sites. No land use controls have been identified at ERP Site ST-22. The proposed project would not conflict with planning criteria established to ensure the protection of health and safety. See **Sections 3.4** and **3.11** for more information on the ERP sites.

Summary. Construction activities associated with the TLF would be consistent with the land use policies specified in the Beale AFB General Plan, and would change the land use designations from Open Space to Housing Accompanied or Housing Unaccompanied.

3.2.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.2.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct the TLF and the land use for that area would continue in its current condition. Therefore, no effects on land use would be expected from implementation of the No Action Alternative.

3.2.3.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

3.2.3.2.1 *Proposed Action*

No effects on land use would be expected from the replacement of Bridges 2710 and 2720. The proposed location of Bridges 2710 and 2720 would be within open space and adjacent to an Outdoor Recreation area. The area would continue to be categorized as Open Space and, therefore, no land use change would be necessary and the project would be consistent with the land use policies specified in the Beale AFB General Plan (Beale AFB 2008). Bridge 2720 would be constructed within ERP Site ST-22, and it would not be within any QD arcs or MMRP sites. No land use controls have been identified at ERP Site ST-22. The proposed project would not conflict with planning criteria established to ensure the protection of health and safety. See **Sections 3.4** and **3.11** for more information on the ERP sites. No long-term effects on land use would be expected from the replacement of bridges on Gavin Mandery Drive.

Summary. Construction activities associated with the Proposed Action would be consistent with the land use policies specified in the Beale AFB General Plan, and would not have any effects on Beale AFB land use. The areas would continue to be categorized as previously designated and, therefore, no changes to land use would be necessary.

3.2.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. The impacts from Alternative 1 would be similar to those described under the Proposed Action. No effects on land use would be expected from the replacement of Bridges 2710 and 2720 or construction of the temporary bypass roads. All activities would be within open space and adjacent to an Outdoor Recreation area. The area would continue to be categorized as Open Space and, therefore, no land use change would be necessary and the project would be consistent with the land use policies specified in the Beale AFB General Plan (Beale AFB 2008).

3.2.3.2.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive and the land use for that area would continue in its current condition. Therefore, no effects on land use would be expected from implementation of the No Action Alternative.

3.2.3.3 *Implement the Base Demolition Plan*

3.2.3.3.1 *Proposed Action*

No long- or short-term impacts on land use would be expected from implementation of the Base Demolition Plan at Beale AFB.

Building 355. No short-term effects on land use would be expected from the demolition of Building 355. Demolishing Building 355 would return the underlying area to a more natural state, and would create long-term, minor, beneficial effects by removing old, outdated, inadequate facilities and creating space for more mission-related land uses in the future, if needed. The proposed project would result in long-term, minor, beneficial effects on land use compatibility and would be consistent with USAF safety guidelines. Portions of the project would be located at ERP Site ST-22. No land use controls have been identified for this site. No active MMRP sites are found near Building 355; nor is the project area within any QD arcs. See **Sections 3.4** and **3.11** for more information on the ERP and MMRP sites, and QD arcs.

Building 1028. The demolition of Building 1028 would have similar impacts on land use as those described for the demolition of Building 355. Building 1028 would be within ERP Site SD-01 and SD-32 and would not be within or adjacent to any MMRP Sites or QD arcs. No land use controls have been identified for this ERP site. See **Sections 3.4** and **3.11** for more information on the ERP and MMRP sites, and QD arcs.

Building 2459. The demolition of Building 2459 would have similar impacts on land use as those described for the demolition of Building 355. Building 2459 would be within ERP Sites ST-22 and SS-39, and would not be within or adjacent to any MMRP Sites or QD arcs. No land use controls have been identified for these sites. See **Sections 3.4** and **3.11** for more information on the ERP and MMRP sites, and QD arcs.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. The demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would have similar impacts on land use as those described for the demolition of Building 355. Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would not be within any ERP Sites, MMRP Sites, or QD arcs.

Summary. Construction and operational activities associated with the proposed project would be consistent and compatible with the land use policies specified in the Beale AFB General Plan, and would not have a significant impact on Beale AFB land use.

3.2.3.3.2 Alternatives

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.2.3.3.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the land use for that area would continue in its current condition. Therefore, long-term, minor, adverse effects on land use would be expected because the land would continue to house old, inadequate buildings and not allow the land to be available for future mission-related land uses.

3.2.4 Environmental Protection Measures

No environmental protection measures are required.

3.3 Air Quality and GHG Emissions

3.3.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

Ambient Air Quality Standards. Under the CAA, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone (O₃) (measured as volatile organic compounds [VOCs] and total nitrogen oxides [NO_x]), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM₁₀] and particulate matter equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (40 CFR Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of California has adopted the NAAQS and promulgated additional California Ambient Air Quality Standards (CAAQS) for criteria pollutants. The CAAQS are more stringent than the Federal primary standards. **Table 3-5** presents the USEPA NAAQS and CAAQS.

Table 3-5. National and State Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard		Secondary Standard
		Federal	California	
CO	8-hour ⁽¹⁾	9 ppm (10 mg/m ³)	Same	None
	1-hour ⁽¹⁾	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)	None
Lead	Rolling 3-Month Average ⁽²⁾	0.15 µg/m ³ ⁽³⁾	None	Same as Primary
	30-Day Average	None	1.5 µg/m ³ ⁽¹³⁾	Same as Primary
NO ₂	Annual ⁽⁴⁾	53 ppb ⁽⁵⁾	0.030 ppm (57 µg/m ³)	Same as Primary
	1-hour ⁽⁶⁾	100 ppb	0.18 ppm (339 µg/m ³)	None
PM ₁₀	24-hour ⁽⁷⁾	150 µg/m ³	50 µg/m ³	Same as Primary
	Annual (Arithmetic Mean)	None	20 µg/m ³	Same as Primary
PM _{2.5}	Annual ⁽⁸⁾	12 µg/m ³	12 µg/m ³	15 µg/m ³
	24-hour ⁽⁶⁾	35 µg/m ³	None	Same as Primary
O ₃	8-hour ⁽⁹⁾	0.075 ppm ⁽¹⁰⁾	0.070 ppm (137 µg/m ³)	Same as Primary
	1-hour ⁽¹⁰⁾	None	0.09 ppm (180 µg/m ³)	Same as Primary
SO ₂	1-hour ⁽¹¹⁾	75 ppb ⁽¹²⁾	0.25 ppm (655 µg/m ³)	None
	Annual (Arithmetic Mean)	0.03 ppm	None	None
	24-hour	0.14 ppm	0.04 ppm (105 µg/m ³)	None
	3-hour ⁽¹⁾	None	None	0.5 ppm
Visibility Reducing Particles	8-hour	None	0.23 per kilometer	None
Sulfates	24-hour	None	25 µg/m ³	None
Hydrogen Sulfide	1-hour	None	0.03 ppm	None
Vinyl Chloride	24-hour	None	0.01 ppm ¹³	None

Sources: USEPA 2011a, CARB 2009

Notes: Parenthetical values are approximate equivalent concentrations.

1. Not to be exceeded more than once per year.
2. Not to be exceeded.
3. Final rule signed 15 October 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved. The USEPA designated areas for the new 2008 standard on November 8, 2011.
4. Annual mean.
5. The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
6. 98th percentile, averaged over 3 years.
7. Not to be exceeded more than once per year on average over 3 years.
8. Annual mean, averaged over 3 years.
9. Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
10. Final rule signed 12 March 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, the USEPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
11. 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
12. Final rule signed 2 June 2010. The 1971 annual (0.3 ppm) and 24-hour (0.14 ppm) sulfur dioxide (SO₂) standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved. The USEPA has issued preliminary designations for the 2010 standard in February 2013 but final designations are pending.
13. 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.

Key: ppm = parts per million; ppb = parts per billion; mg/m³ = milligram per cubic meter; µg/m³ = microgram per cubic meter

Attainment versus Nonattainment and General Conformity. The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated as nonattainment but is now in attainment; and an unclassified air quality designation by USEPA means that there is not enough information to classify an AQCR appropriately, so the area is considered in attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS to the California Air Resources Board (CARB). CARB has delegated responsibility for implementation of the Federal CAA and California CAA to local air pollution control agencies. In accordance with the Federal CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

The General Conformity Rule applies only to significant actions in nonattainment or maintenance areas. This rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

Federal Prevention of Significant Deterioration. Federal Prevention of Significant Deterioration (PSD) regulations apply in attainment areas to a major stationary source, (i.e., source with the potential to emit 250 tons per year [tpy] of any criteria pollutant), and a significant modification to a PSD major stationary source, (i.e., change that adds 10 to 40 tpy to the facility’s potential to emit depending on the pollutant). Additional PSD major source and significant modification thresholds apply for GHGs, as discussed in the GHG subsection. PSD permitting can also apply to a proposed project if all three of the following conditions exist: (1) the proposed project is a modification with a net emissions increase to an existing PSD major source, and (2) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I Areas), and (3) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 milligram per cubic meter (mg/m³) or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s Class designation (40 CFR 52.21[c]).

Title V Requirements. Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A Title V major stationary source has the potential to emit criteria air pollutants and hazardous air pollutants (HAPs) at levels equal to or greater than Major Source Thresholds. Major Source Thresholds vary depending on the attainment status of an AQCR. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. Section 112 of the CAA lists HAPs and identifies source categories.

GHG Emissions. GHGs are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO₂), methane, and NO_x. GHGs are primarily produced by the burning of fossil fuels and through industrial and biological processes. On 22 September 2009, the USEPA issued a final rule for mandatory GHG reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on CO₂ and other

GHG emissions that can be used to inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO₂ equivalent (CO₂e) emissions per year, but it excludes mobile source emissions. GHG emissions are also factors in PSD and Title V permitting and reporting, according to a USEPA rulemaking issued on 3 June 2010 (75 Federal Register [FR] 31514). GHG emissions thresholds of significance for permitting of stationary sources are 75,000 tons CO₂e per year and 100,000 tons CO₂e per year for PSD and Title V permitting, respectively.

EO 13514 was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, “agency activities, policies, plans, procedures, and practices” and “specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics” relevant to the implementation of EO 13514. On 26 August 2010, DOD released its SSPP to the public. This implementation plan describes specific actions the DOD will take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. All SSPPs segregate GHG emissions into three categories: Scope 1, Scope 2, and Scope 3 emissions. Scope 1 GHG emissions are those directly occurring from sources that are owned or controlled by the agency. Scope 2 emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency. Scope 3 emissions are other indirect GHG emissions that result from agency activities but from sources that are not owned or directly controlled by the agency. The GHG goals in the DOD SSPP include reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to FY 2008 emissions, and reducing Scope 3 GHG emissions by 13.5 percent by 2020, relative to FY 2008 emissions.

3.3.2 Existing Conditions

Beale AFB is in Yuba County, which is within the Sacramento Valley Intrastate AQCR. Four of the proposed projects and a portion of the fifth are in Yuba County, which is in the FRAQMD and subject to rules and regulations developed by the FRAQMD. The FRAQMD is responsible for implementing and enforcing state and Federal air quality regulations in Yuba County, Sutter County, and portions of the Northern Sacramento Valley Air Basin. The air quality in Yuba County has been characterized by the USEPA as nonattainment for PM_{2.5} and as unclassified/attainment for all other criteria pollutants (FRAQMD 2010b). In addition, CARB has designated Yuba County as a nonattainment-transitional area for 8-hour O₃ and in nonattainment for PM₁₀ and unclassified/attainment for all other criteria pollutants (FRAQMD 2010a). Beale AFB is not within 10 kilometers of a Class I area.

3.3.3 Environmental Consequences

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases or decreases in regulated air pollutant emissions, and upon existing conditions and ambient air quality. The evaluation criteria are dependent on whether the Proposed Action is located in an attainment, nonattainment, or maintenance area for criteria pollutants. Other evaluation criteria include whether Major New Source Review (NSR) air quality construction permitting is triggered or Title V operating permitting is triggered. Major NSR air quality permitting is divided into Nonattainment Major NSR for nonattainment pollutants and PSD permitting for attainment pollutants. All of these evaluation criteria are discussed in the following paragraphs.

Attainment Area Pollutants. The Federal attainment area pollutants for the location of this Proposed Action are CO, NO₂ (measured as NO_x), SO₂, lead, PM₁₀, and O₃ (measured as NO_x and VOCs). The state attainment area pollutants for the location of this Proposed Action are CO, NO₂ (measured as NO_x), SO₂, and Pb. The impact in NAAQS and CAAQS “attainment” areas would be considered significant if

the net increases in these pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Exceed any Evaluation Criteria established by a SIP
- Create objectionable odors affecting a substantial number of people.

Nonattainment or Maintenance Area Pollutants. The Federal nonattainment area pollutants for Yuba County are PM_{2.5}. The state nonattainment area pollutants for Yuba County are PM₁₀ and O₃ (measured as NO_x and VOCs). Effects on air quality in NAAQS and CAAQS “nonattainment” areas are considered significant if the net changes in these project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O₃ precursors)
- Create objectionable odors affecting a substantial number of people.

For Federal actions in nonattainment or maintenance areas, the General Conformity Rule applies. With respect to the General Conformity Rule, effects on air quality can be considered significant if the proposed Federal action emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area. In addition, if a facility has a specific general conformity budget listed in the SIP, a proposed action that results in an exceedance of that budget would be considered a significant effect on air quality.

Table 3-6 presents the Federal General Conformity *de minimis* thresholds, by regulated pollutant. As shown in this table, *de minimis* thresholds vary depending on the severity of the nonattainment area classification.

Table 3-7 presents the significance thresholds for FRAQMD under the California Environmental Quality Act Indirect Source Review Guidelines for assessing air quality impacts of land use projects.

Note that stationary emissions sources subject to NSR permitting, including minor NSR, are not required to be counted towards the General Conformity *de minimis* thresholds. The reasoning for this exclusion is that by meeting the criteria and going through the approval process with the appropriate Federal, state, or local air quality permitting authority, these emissions sources are demonstrating that they are in conformity with the SIP. Following is a discussion of what level of stationary source emissions would have significant air permitting impacts.

Table 3-6. Conformity *de minimis* Emissions Thresholds

Pollutant	Status	Classification	<i>de minimis</i> Limit (tons per year [tpy])
O ₃ (measured as NO _x or VOCs)	Nonattainment	Extreme Severe Serious Moderate/marginal (inside ozone transport region) All others	10 25 50 50 (VOCs)/100 (NO _x) 100
	Maintenance	Inside ozone transport region Outside ozone transport region	50 (VOCs)/100 (NO _x) 100
CO	Nonattainment/ maintenance	All	100
PM ₁₀	Nonattainment	Serious Moderate No Special Classification	70 100 100
	Maintenance	All	100
PM _{2.5} (measured directly, or as SO ₂ , or NO _x , or VOC as significant precursors)	Nonattainment/ maintenance	All	100
SO ₂	Nonattainment/ maintenance	All	100
NO _x	Nonattainment/ maintenance	All	100
VOC	Nonattainment/ maintenance	All	100
Lead	Nonattainment/ maintenance	All	25

Source: 40 CFR 93.153, as of January 9, 2012

Table 3-7. FRAQMD Significance Thresholds

Project Phase	NO _x	ROG	CO	PM ₁₀	PM _{2.5}	GHG
FRAQMD Operational	25 lbs/day	25 lbs/day	Not yet established	80 lbs/day	Not yet established	Not yet established
FRAQMD Construction	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	Not yet established	80 lbs/day	Not yet established	Not yet established

Source: FRAQMD 2010a

Note: NO_x and ROG construction emissions may be averaged over the life of the project, but may not exceed 4.5 tpy.Key: NO_x = nitrogen oxide

ROG = reactive organic gas; ROG emissions are assumed equivalent to the corresponding Federal pollutant, VOCs

PM_{10/2.5} = respirable particulate matter (including particulate matter equal to or less than 10/2.5 microns in diameter)GHG = greenhouse gas (CO₂ and methane [CH₄]); lbs/day = pounds per day; tpy = tons per year

PSD and Title V Permits. The following factors were considered in determining the significance of air quality impacts with respect to PSD permitting requirements prior to construction:

- If the net increase in stationary source emissions qualify as a PSD major source. This includes 250 tpy emissions per attainment pollutant (40 CFR 52.21(b)(1) and 40 CFR 52.21(a)(2), or 75,000 tpy emissions of GHGs.
- If the net increase in stationary source emissions qualify as a significant modification to an existing PSD major stationary source, (i.e., change that adds 10 to 40 tpy of criteria pollutants to the PSD major source's potential to emit depending on the pollutant, or adding 75,000 tpy of GHGs).
- If the Proposed Action occurs within 10 kilometers of a Class I area and if it would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) or more (40 CFR 52.21[b][23][iii] and 40 CFR 52.21[a][2]).

The following factor was considered in determining the significance of air quality impacts with respect to Title V operating permit requirements (40 CFR 71.2 and 40 CFR 71.3):

- If the increase in stationary source emissions under the Proposed Action qualify as a Title V major source by itself, or the resulting stationary source emissions after the change exceed the Title V thresholds. This includes the potential to emit 100 tpy for criteria pollutants (lower thresholds apply in nonattainment areas and depend on the pollutant and severity of nonattainment), 10 tpy of any individual HAP, 25 tpy of all HAPs combined, or 100,000 tpy of GHGs.

Only operational emissions increases were evaluated for Title V permitting impacts as construction activity emissions are typically not subject to the above significance criteria for these permit programs.

Overall Construction Air Quality Impacts. Implementation of the proposed projects would be expected to result in short-term, minor, adverse effects on the on local air quality and would have negligible impacts on regional air quality from equipment that would be used during demolition, construction, and repair activities. The proposed projects are independent projects that would be implemented at different times and locations over the next 4 years. It is possible that several projects would occur simultaneously but would not be expected to result in significant adverse effects. Combining construction emissions from several of the three projects that could occur in the same year would exceed the FRAQMD significance thresholds of 4.5 tpy for NO_x (potential sum of approximately 20 tpy); however, they would not exceed Federal significance thresholds as they would be either Federal attainment pollutants or be below the General Conformity threshold for $\text{PM}_{2.5}$, i.e. below 100 tpy. Therefore, no significant adverse effects on local air quality would be expected from construction activities.

Projects under the Proposed Action and alternatives would generate air pollutant emissions from grading, filling, compacting, and trenching activities; and from operation of construction and demolition equipment and generators. Construction, demolition, and repair activities would also generate total suspended particulate and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site-preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction activities would incorporate BMPs and environmental protection measures to minimize fugitive particulate matter emissions. Additionally, workers commuting daily to and from the construction, demolition, or repair sites in their personal

vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horsepower would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities. All of the proposed projects would occur on Beale AFB. Air quality emissions from individual projects in the Proposed Action and Alternative would be below USEPA and FRAQMD significance thresholds when employing FRAQMD conservation measures. Specific impacts on local and regional air quality from construction, demolition, and repairs of the Proposed Action and alternatives are discussed under each project alternative. All construction and demolition projects were considered to occur over a maximum of 6 months per year as Beale AFB is limited to conducting such activities only during the dry season, i.e. May through November.

Overall Operational Air Quality Impacts. It is not anticipated that operation of the proposed projects under normal conditions would increase operational emissions on Beale AFB. All three proposed projects do not have operational activities that would have a significant impact on local or regional air quality. Specific impacts on air quality from operation of the Proposed Action and alternatives are discussed following each project alternative.

3.3.3.1 Construct Temporary Lodging Facility

3.3.3.1.1 Proposed Action

The construction and operational activities associated with the TLF Proposed Action would not have a significant impact on local or regional air quality. **Table 3-8** summarizes the annual and daily estimated air quality emissions from construction activities in FY 2015. Emissions from the Proposed Action's construction activities were estimated using URBEMIS and the same assumptions, defaults, and conservative measures as described in **Section 3.3.3.1.1**.

Construction Emissions. Emissions from construction activities associated with the TLF Project would have short-term, minor, adverse impacts on local air quality and would have negligible impacts on regional air quality. Implementation of the Proposed Action would not result in violations of any ambient air quality standards. The construction of the TLF as described in **Section 2.1.2** would generate air pollutant emissions from grading, filling, compacting, and trenching activities; and from operation of construction equipment and generators. Construction activities would also generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction activities would incorporate BMPs and environmental protection measures (see **Section 3.3.4** and **Table 2-10**) to minimize fugitive particulate matter emissions. Additionally, construction workers commuting daily to and from the construction site in their personal vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horsepower would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities.

Operational Emissions. Operations would consist of vehicles traveling to and from the new TLF. Operational vehicles associated with the TLF would not increase the net number of personnel or vehicles on the installation. Therefore, emissions from these vehicles were not estimated. In addition, these facilities would replace facilities slated for demolition. It is anticipated that the added emissions from heating/cooling systems of the proposed facilities would be offset by a reduction in air emissions from the demolition of older facilities that use more emissions intensive systems. It is not anticipated that emissions from operational activities for the Proposed Action would contribute to or affect local or regional attainment status.

**Table 3-8. Emissions Resulting from Constructing TLF FY 2015:
Proposed Action**

Activity	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Construction Emissions (tons per year [tpy])	3.44	0.54	3.32	0.00	4.10	1.00
USEPA Significance Threshold (tpy)	NA	NA	NA	NA	NA	100
FRAQMD Significance Threshold (tpy)	4.5	4.5	NA	NA	NA	NA
Unmitigated Construction Emissions (lbs/day)	52.16	8.23	50.23	0.03	62.18	15.16
Mitigated Construction Emissions (lbs/day)	52.16	8.23	50.23	0.03	21.75	6.72
FRAQMD Significance Threshold (lbs/day)	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	NA	NA	80	NA

Sources: 40 CFR 93.153 and FRAQMD 2010A

Notes: Annual emissions reported are unmitigated.

URBEMIS estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

NA = not applicable

GHG Emissions. The Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels from construction equipment. Construction activities associated with the Proposed Action would emit 509.9 metric tons of CO₂ in fiscal year (FY) 2015. CO₂ emissions from the Proposed Action would be an estimated 0.00009 percent of the total CO₂ emissions in California (CEC 2006). Therefore, the Proposed Action would have negligible contribution towards statewide GHG inventories.

Summary. As shown in **Table 3-8**, air quality emissions from the Proposed Action would be well below USEPA and FRAQMD significance thresholds when employing FRAQMD conservation measures. Although the Proposed Action's construction NO_x emissions are above the 25 pounds per day FRAQMD threshold, they are below the FRAQMD 4.5 tpy threshold limit. Therefore, construction and operational activities associated with the Proposed Action would not have a significant impact on local or regional air quality. **Appendix B** contains detailed calculations and the assumptions used to estimate the air quality emissions from the Proposed Action.

3.3.3.1.2 Alternatives

No alternatives for the TLF were carried forward for analysis.

3.3.3.1.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not construct the proposed TLF and Beale AFB would be unable to provide adequate short-term temporary housing accommodations for military

members and their dependents. This would result in the continuation of the existing condition. Therefore, no direct or indirect adverse impacts would be expected on local or regional air quality from implementation of the No Action Alternative.

3.3.3.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

3.3.3.2.1 Proposed Action

The construction activities associated with the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive would not have a significant impact on local or regional air quality. **Table 3-9** summarizes the annual and daily estimated air quality emissions from construction activities in FY 2014. Emissions from the Proposed Action's construction activities were estimated using URBEMIS and the same assumptions, defaults, and conservative measures as described in **Section 3.3.3.1.1**.

Table 3-9. Emissions Resulting from Replace Bridges 2710 and 2720 FY 2014: Proposed Action

Activity	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Replacement Emissions (tons per year [tpy])	2.30	0.30	1.62	0.00	0.52	0.19
USEPA Significance Threshold (tpy)	NA	NA	NA	NA	NA	100
FRAQMD Significance Threshold (tpy)	4.5	4.5	NA	NA	NA	NA
Unmitigated Construction Emissions (lbs/day)	34.78	4.48	24.51	0.01	7.94	2.91
Mitigated Construction Emissions (lbs/day)	34.78	4.48	24.51	0.01	6.85	2.68
FRAQMD Significance Threshold (lbs/day)	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	NA	NA	80	NA

Sources: 40 CFR 93.153 and FRAQMD 2010a

Notes: Annual emissions reported are unmitigated.

URBEMIS estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

NA = not applicable

Construction Emissions. Emissions from construction activities associated with the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive would have short-term, minor, adverse impacts on local air quality and would have negligible impacts on regional air quality. Implementation of the Replace Bridges 2710 and 2720 on Gavin Mandery Drive would not result in violations of any ambient air quality standards. The construction activities as described in **Section 2.1.3** would generate air pollutant emissions from grading, filling, compacting, and trenching activities; and from operation of construction equipment and generators. Construction activities would also generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction activities would incorporate BMPs and environmental protection measures

(see **Section 3.3.4** and **Table 2-10**) to minimize fugitive particulate matter emissions. Additionally, construction workers commuting daily to and from the construction site in their personal vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horsepower would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities.

Operational Emissions. No new operational emissions are anticipated with the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive. Traffic levels would return to normal levels once repair/replacement activities are completed.

GHG Emissions. The replacement of Bridges 2710 and 2720 on Gavin Mandery Drive would contribute directly to emissions of GHGs from the combustion of fossil fuels in construction equipment. Construction activities associated with the Proposed Action would emit 293.9 metric tons of CO₂ in FY 2014. CO₂ emissions from the Proposed Action would be an estimated 0.00006 percent of the total CO₂ emissions in FY 2014 in California (CEC 2006). Therefore, the Proposed Action would have negligible contribution towards statewide GHG inventories.

Summary. As shown in **Table 3-9**, air quality emissions from the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive would be well below USEPA and FRAQMD significance thresholds when employing FRAQMD conservation measures. Although the Proposed Action's construction NO_x emissions are above the 25 pounds per day FRAQMD threshold, they are below the FRAQMD 4.5 tpy threshold limit. Therefore, construction and operational activities associated with the Proposed Action would not have a significant impact on local or regional air quality. **Appendix B** contains detailed calculations and the assumptions used to estimate the air quality emissions from the Proposed Action.

3.3.3.2.2 Alternatives

Alternative 1. One alternative for the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Alternative 1 would include the construction of a temporary bypass road in addition to bridge replacement. The construction activities associated with Alternative 1 would not have a significant impact on local or regional air quality. **Table 3-10** summarizes the annual and daily estimated air quality emissions from construction activities in FY 2014. Emissions from Alternative 1's construction activities were estimated using URBEMIS and the same assumptions, defaults, and conservative measures as described in **Section 3.3.3.1.1**.

Construction Emissions. Emissions from construction activities associated with Alternative 1 would have short-term, minor, adverse impacts on local air quality and would have negligible impacts on regional air quality. Implementation of Alternative 1 would not result in violations of any ambient air quality standards. The construction activities as described in **Section 2.1.3** would generate air pollutant emissions from grading, filling, compacting, and trenching activities; and from operation of construction equipment and generators. Construction activities would also generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction activities would incorporate BMPs and environmental protection measures (see **Section 3.3.4** and **Table 2-10**) to minimize fugitive particulate matter emissions. Additionally, construction workers commuting daily to and from the construction site in their personal vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horsepower would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities.

Table 3-10. Emissions Resulting from Bridge 2710 and 2720 Replacement FY 2014: Alternative 1

Activity	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Replacement Emissions (tons per year [tpy])	2.30	0.30	1.62	0.00	0.60	0.21
USEPA Significance Threshold (tpy)	NA	NA	NA	NA	NA	100
FRAQMD Significance Threshold (tpy)	4.5	4.5	NA	NA	NA	NA
Unmitigated Construction Emissions (lbs/day)	34.78	4.48	24.51	0.01	9.14	3.16
Mitigated Construction Emissions (lbs/day)	34.78	4.48	24.51	0.01	7.12	2.73
FRAQMD Significance Threshold (lbs/day)	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	NA	NA	80	NA

Sources: 40 CFR 93.153 and FRAQMD 2010a

Notes: Annual emissions reported are unmitigated.

URBEMIS estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

NA = not applicable

Operational Emissions. No new operational emissions are anticipated from Alternative 1. Traffic levels would return to normal levels once repair/replacement activities are completed.

GHG Emissions. Alternative 1 would contribute directly to emissions of GHGs from the combustion of fossil fuels in construction equipment. Construction activities associated with the Proposed Action would emit 293.9 metric tons of CO₂ in FY 2014. CO₂ emissions from Alternative 1 would be an estimated 0.00006 percent of the total CO₂ emissions in FY 2014 in California (CEC 2006). Therefore, Alternative 1 would have negligible contribution towards statewide GHG inventories.

Summary. As shown in **Table 3-10**, air quality emissions from Alternative 1 would be well below USEPA and FRAQMD significance thresholds when employing FRAQMD conservation measures. Although Alternative 1's construction NO_x emissions are above the 25 pounds per day FRAQMD threshold, they are below the FRAQMD 4.5 tpy threshold limit. Therefore, construction and operational activities associated with Alternative 1 would not have a significant impact on local or regional air quality. **Appendix B** contains detailed calculations and the assumptions used to estimate the air quality emissions from Alternative 1.

3.3.3.2.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive, and the existing bridges would continue to deteriorate and require continued reduction of maximum loads and an increase in the frequency of required inspection. While the possible increase of inspections could increase the vehicle emissions on the installation, it is anticipated that there would not be a significant direct or indirect adverse impacts on local or regional air quality from implementation of the No Action Alternative.

3.3.3.3 Implement the Base Demolition Plan

3.3.3.3.1 Proposed Action

The demolition activities associated with the implementation of the Base Demolition Plan at Beale AFB under the Proposed Action would not have a significant impact on local or regional air quality. **Table 3-11** summarizes the annual and daily estimated air quality emissions from demolition activities in FY 2015. Emissions from the Proposed Action's demolition activities on Beale AFB were estimated using URBEMIS and the same assumptions, defaults, and conservative measures as described in **Section 3.3.3.1.1**.

**Table 3-11. Emissions Resulting from Implement the Base Demolition Plan, FY 2015:
Proposed Action**

Activity	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}
Demolition Emissions (tons per year [tpy])	1.97	0.24	1.24	0.00	1.71	0.42
USEPA Significance Threshold (tpy)	NA	NA	NA	NA	NA	100
FRAQMD Significance Threshold (tpy)	4.5	4.5	NA	NA	NA	NA
Unmitigated Construction Emissions (lbs/day)	30.05	3.61	18.93	0.02	26.06	6.44
Mitigated Construction Emissions (lbs/day)	30.05	3.61	18.93	0.02	17.97	4.75
FRAQMD Significance Threshold (lbs/day)	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	25 lbs/day multiplied by project length, not to exceed 4.5 tpy	NA	NA	80	NA

Sources: 40 CFR 93.153 and FRAQMD 2010a

Notes: Annual emissions reported are unmitigated.

URBEMIS estimates emissions of ROG. Emissions of ROG are assumed to equal VOC emissions.

NA = not applicable

Demolition Emissions. Emissions from demolition activities associated with the implementation of the Base Demolition Plan at Beale AFB under the Proposed Action would have short-term, minor, adverse impacts on local air quality and would have negligible impacts on regional air quality. Implementation of the Base Demolition Plan would not result in violations of any ambient air quality standards. The demolition activities as described in **Section 2.1.5** would generate air pollutant emissions from grading, filling, compacting, and trenching activities; and from operation of construction equipment and generators. Demolition activities would also generate total suspended particulate and PM₁₀ emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from the project site is proportional to the area of land being worked and the level of construction activity. Demolition activities would incorporate BMPs and environmental protection measures (see **Section 3.3.4**

and **Table 2-10**) to minimize fugitive particulate matter emissions. Additionally, workers commuting daily to and from the project site in their personal vehicles would result in criteria pollutant emissions. All portable construction equipment larger than 50 brake-horsepower would be registered in the CARB Portable Equipment Registration Program prior to commencing construction activities.

Operational Emissions. No new operational emissions are anticipated with the implementation of the Base Demolition Plan at Beale AFB Proposed Action.

GHG Emissions. The demolition activities associated with the Implement the Base Demolition Plan at Beale AFB under the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels in construction equipment. Demolition activities associated with the Proposed Action would emit 299.4 metric tons of CO₂ in FY 2015. CO₂ emissions from the Proposed Action would be an estimated and 0.000006 percent of the total CO₂ emissions in FY 2015 in California (CEC 2006). Therefore, the Proposed Action would have negligible contribution towards statewide GHG inventories.

Summary. As shown in **Table 3-11**, air quality emissions from the implementation of the Base Demolition Plan at Beale AFB Proposed Action would be well below USEPA and FRAQMD significance thresholds when employing FRAQMD conservation measures. Although the Proposed Action's construction NO_x emissions are above the 25 pounds per day FRAQMD threshold, they are below the FRAQMD 4.5 tpy threshold limit. Therefore, construction and operational activities associated with the Proposed Action would not have a significant impact on local or regional air quality. **Appendix B** contains detailed calculations and the assumptions used to estimate the air quality emissions from the Proposed Action.

3.3.3.3.2 Alternatives

No alternatives for the implementation of the Base Demolition Plan were carried forward for analysis.

3.3.3.3.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and identified buildings would not be demolished. This would result in the continuation of the existing condition. Therefore, no direct or indirect adverse impacts would be expected on local or regional air quality from implementation of the No Action Alternative.

3.3.4 Environmental Protection Measures

Measure 1: Fugitive Dust Control. Contractors would be required to follow FRAQMD fugitive dust-control measures as specified in *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land Use Projects Under CEQA* (FRAQMD 2010a) and *Functioning of the MCAQMD Indirect Source Rule*. Fugitive dust-control measures as outlined by FRAQMD include wind breaks and barriers, frequent water applications, application of soil additives, control of vehicle access and flow routes, vehicle speed restrictions, covering of piles, use of gravel at site exit points, washing of equipment at the end of each work day and prior to site removal, reestablishing ground cover, and work stoppage.

The mitigation measures used in the URBEMIS model for fugitive dust control include the following for fine and mass grading:

- Soil-stabilizing measures such as replacing ground cover in disturbed areas as quickly as possible; watering exposed surfaces two times daily; and minimizing the free fall distance of soil during equipment loading/unloading activities
- Unpaved road measures to include managing haul road dust by watering these roads two times daily.

Measure 2: Construction and Demolition Equipment Emissions Controls. Construction and demolition equipment exhaust emissions would not exceed FRAQMD Regulation II, Rule 3.0, *Visible Emissions* limitations (40 percent opacity or Ringlemann 2.0) and MCAQMD Regulation 1, Rule 1-410 - *Visible Emissions* limitations (20 percent capacity or Ringlemann 1.0). All construction and demolition equipment would be properly tuned and maintained prior to and for the duration of the Proposed Action. In addition, construction equipment and vehicles would reduce idling times to 5 minutes or less when possible.

The mitigation measures used in the URBEMIS model for construction and demolition equipment emission controls include the following for demolition, grading, trenching, paving, and building construction:

- Construction and demolition equipment would use diesel particulate filters
- Construction and demolition equipment would use diesel oxidation catalysts.

Measure 3: Power Sources. The Proposed Action would use existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.

Measure 4: Speed Limits. All vehicle operators will follow the posted speed limit on paved roads and a 15-mile-per-hour speed limit on unpaved roads.

3.4 Health and Safety

3.4.1 Definition of the Resource

A safe environment is one in which the potential for death, serious bodily injury or illness, or property damage is eliminated or reduced as much as possible. Human health and safety addresses health and safety of workers during demolition and construction activities, and subsequent operations of those facilities.

Construction site safety requires adherence to regulatory requirements imposed for the benefit of employees. It includes implementation of engineering and administrative practices that aim to reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Federal OSHA, USEPA, and state occupational safety and health agencies. These standards specify health and safety requirements, the amount and type of training required for industrial workers, the use of personal protective equipment (PPE), administrative controls, engineering controls, and permissible exposure limits for workplace stressors.

AFI 91-302, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program, implements AFD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF

personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

The Occupational Safety and Health Act of 1970 aims to ensure safe and healthy working conditions by setting and enforcing safe workplace standards. The State of California administers its own occupational safety and health program (California OSHA) in accordance of Section 18 of the Federal Occupational Safety and Health Act. The National Institute for Occupational Safety and Health (NIOSH) also has guidelines and recommendations to ensure safety and prevention of work-related illnesses and injuries.

Health and safety hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Hazards include transportation, maintenance and repair activities, and the creation of noisy environments or a potential fire hazard. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments due to noise or fire hazards for nearby populations. Noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.4.2 Existing Conditions

All contractors performing construction activities at Beale AFB are responsible for following ground safety regulations (i.e., Federal and California OSHA regulations) and workers compensation programs, and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Occupational safety and health programs address exposure to hazardous materials, use of PPE, and availability of Material Safety Data Sheets (MSDSs). Occupational health and safety is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical hazards (e.g., noise propagation and falls), and biological agents (e.g., infectious waste, wildlife, poisonous plants); to recommend and evaluate controls (e.g., administrative, engineering, and PPEs [e.g., ventilation and respirators]) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers engaged in hazardous waste work and subject to any accidental chemical exposures, the use of respiratory protection, or other work requiring medical monitoring.

There are numerous explosive sites on Beale AFB that require explosive safety zones, or QD arcs. These are located on the northern and southern parts of the installation. QD arcs are established by the 9 RW Safety Office to minimize risk and exposure to individuals from explosives and explosive storage facilities (Beale AFB 2008). USAF Manual 91-201 establishes the size of QD arcs based upon QD criteria or the category and weight of the explosives contained within the facility. The Proposed Action would not be within any of the QD arcs on Beale AFB.

The MMRP addresses nonoperational military ranges and other sites that are suspected or known to contain unexploded ordnance (UXO). Beale AFB has 44 range sites that contain various munitions or UXO. Most of the munitions and UXO on the surface have been removed; however, munitions and UXO still can be found below the ground surface. No MMRP sites overlap or are adjacent to the proposed project sites at Beale AFB.

Hazardous substances are found at Beale AFB in subsurface soil and groundwater due to past leaks or spills. The DOD ERP is designed to identify, confirm, and clean up problems arising from past releases of hazardous substances and petroleum products into the environment. There are 40 ERP sites on Beale

AFB; 19 currently require no further action or are being remediated via overlapping sites (see **Figure 3-3**). ERP sites can pose a threat to the health and safety of workers working within and adjacent to known ERP sites. Four active ERP sites overlap with or are adjacent to the proposed project sites. Workers performing soil-removal activities within ERP sites are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training, and supervisors are required to have an OSHA Site Supervisor certification. Any work performed in a known ERP site on Beale AFB must acquire prior HQ ACC approval. See **Section 3.11** for more information on the ERP sites near the Proposed Action and alternatives.

Due to the ERP and MMRP sites at Beale AFB, the installation is on the Department of Toxic Substances Control Hazardous Waste and Substances Sites (also known as the “Cortese List”) and other associated lists in accordance with Government Code Section 65962.5.

Other hazards could include proximity to a public airport or natural hazards such as wildfires. There are no public airports within 2 miles of Beale AFB. The closest public airport to Beale AFB is the Yuba County Airport, approximately 7 miles to the west. Wildfires can occur at Beale AFB, and the installation implements fire management practices such as prescribed burning and firebreak construction (Beale AFB 2011a). Geologic hazards are addressed in **Section 3.5**.

3.4.3 Environmental Consequences

Any increase in safety risks would be considered an adverse effect on safety. A proposed action could have a significant effect with respect to health and safety if the following were to occur:

- Substantially increase risks associated with the safety of construction personnel, contractors, or the local community
- Substantially hinder the ability to respond to an emergency
- Introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

Overall Construction Impacts. Short-term, minor, adverse impacts on safety would be anticipated from the Proposed Action due to the potential slight increase in the short-term risks associated with construction and demolition activities that would occur during the normal workday. During all phases of the Proposed Action, safety standards required by OSHA and NIOSH would be followed. Workers would be required to wear PPE such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs and placards. Construction equipment and associated trucks transporting material to and from the construction site would be directed to roads and streets that carry the least traffic.

Construction workers could encounter soil or groundwater contamination, UXO, or related contamination, which could result in short-term, minor, adverse impacts on workers. Projects that are within or near to ERP and MMRP sites increase the potential for construction workers to encounter contamination. Prior to commencement of construction and demolition activities at or within the vicinity of open ERP sites, a health and safety plan should be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. In addition, supervisors would be required to obtain an OSHA Site Supervisor Certification. Coordination with the installation Safety Officer would occur prior to commencement of construction activities to determine if an ERP waiver is required for each particular site. For more information on ERP sites and their associated hazards, see **Section 3.11**.

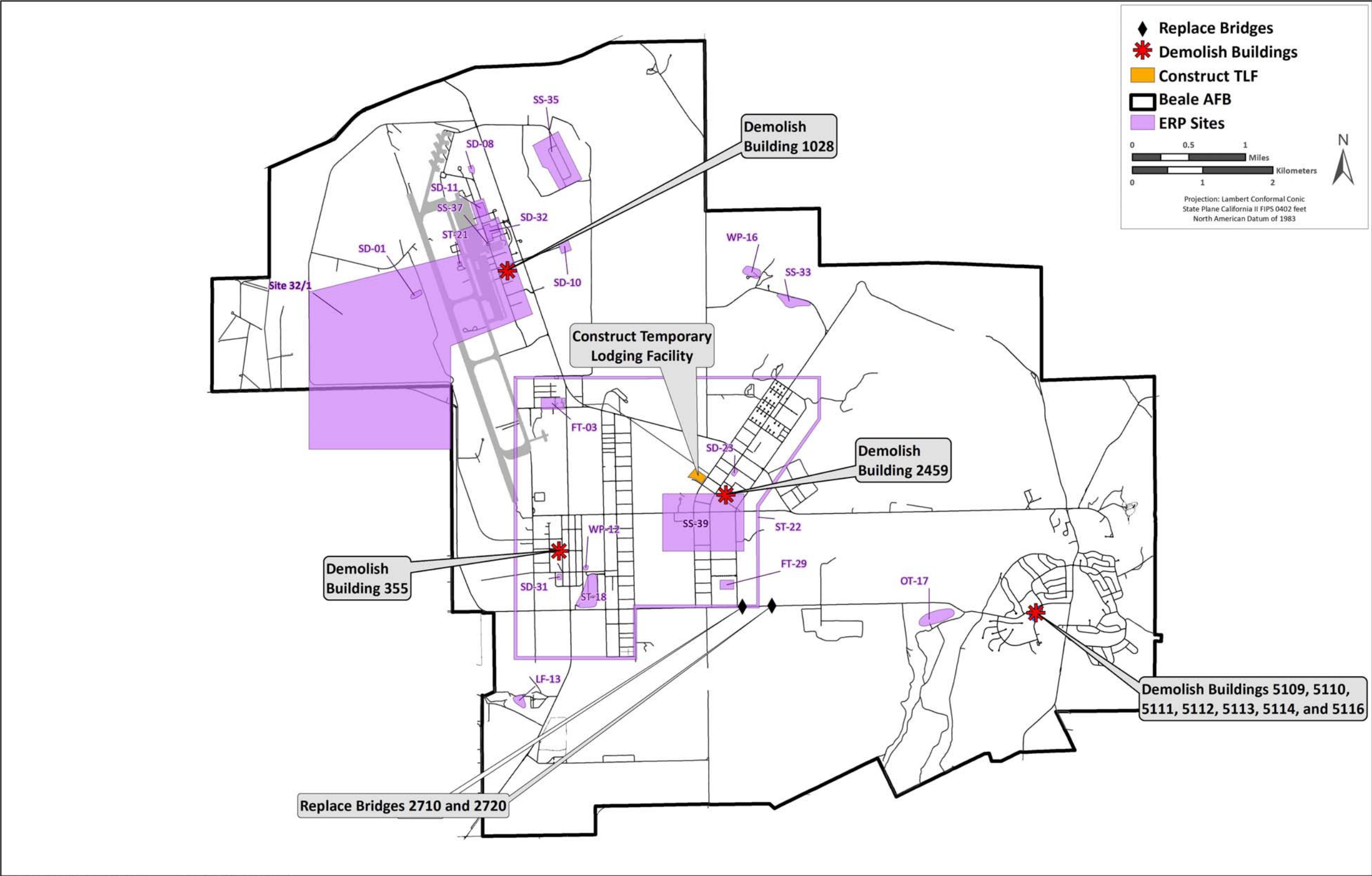


Figure 3-3. Environmental Restoration Program Sites at Beale AFB

Short-term, negligible, adverse effects on safety from exposure to ACMs or LBP could be experienced during demolition, construction, and infrastructure improvement activities, but adherence to all Federal, state, and local regulations and Beale AFB management plans would reduce these effects. Long-term, negligible to minor, beneficial effects on safety would be experienced from the removal of ACMs and LBP materials by reducing potential exposure to personnel. Demolition, construction, and infrastructure improvement activities would be accomplished in accordance with Federal, state, and local regulations to minimize safety hazards associated with hazardous materials, wastes, and substances.

Overall Operational Impacts. Implementation of the Proposed Action would result in beneficial impacts as deteriorating infrastructure that currently poses a health and safety risk would be repaired or replaced. Implementation of the base demolition plan would result in long-term, beneficial health and safety impacts as there would be the continued risk of exposure to ACMs and LBPs in the buildings proposed for demolition would be eliminated.

3.4.3.1 Construct Temporary Lodging Facility

3.4.3.1.1 Proposed Action

Short-term, minor, adverse impacts on safety would be anticipated from the proposed project due to the potential slight increase in the short-term risks associated with construction activities that would occur during the normal workday. During all phases of the proposed project, safety standards required by OSHA and NIOSH would be followed. Workers would be required to wear PPE such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs and placards. Construction equipment and associated trucks transporting material to and from the construction site would be directed to roads and streets that carry the least traffic.

This project would be constructed within ERP Site ST-22. ST-22 is a large area of current and former USTs within which the soil and groundwater has been contaminated with petroleum hydrocarbons and VOCs. Approximately 95 percent of these UST locations have received regulatory closure (Beale AFB 2007a). ERP Site ST-22 is on the Cortese List (i.e., listed under Government Code Section 65962.5). It is possible that contaminated material from ERP Site ST-22 could be encountered by workers in the area and this would result in short-term, minor, adverse impacts on health and safety. If contaminated material is encountered during construction, work would be halted and the Beale AFB ERP office would be contacted to ensure that any contaminated material is managed in accordance with ERP guidelines (see **Section 3.4.4**). See **Section 3.11** for more information on impacts on hazardous materials and waste from ERP Site ST-22.

No active MMRP sites are found within the TLF project area; nor is the project area within any QD arcs. Although the proposed project is not in a QD arc, or within UXO or MMRP sites, there is a chance of inadvertent discovery of munitions or UXO during construction activities. If any suspected military munitions or UXO are found during construction activities, work would be halted in that particular area, personnel would move away from the site, and the Beale AFB EOD Flight and Safety Office would be contacted (see **Section 3.4.4**).

Construction could result in temporary interference with emergency response planning or emergency evacuation along Warren Shingle Road; however, traffic can be diverted during construction and no impacts would be anticipated. The proposed project would not expose people or structures to an increased risk of wildland fires. The potential for wildland fires in this area is low.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on health and safety.

3.4.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.4.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct a TLF. The No Action Alternative would not comply with USAF safety requirements, as new facilities that meet current safety standards would not be constructed. Long-term, minor impacts would be anticipated to health and safety.

3.4.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.4.3.2.1 *Proposed Action*

Short-term, minor, adverse impacts on safety would be anticipated from the proposed project due to the potential slight increase in the short-term risks associated with construction activities that would occur during the normal workday. During all phases of the proposed project, safety standards required by OSHA and NIOSH would be followed. Workers would be required to wear PPE such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs and placards. Construction equipment and associated trucks transporting material to and from the construction site would be directed to roads and streets that carry the least traffic.

The project area for Bridge 2710 is not within any ERP sites. The replacement of Bridge 2720 would be within ERP Site ST-22. ST-22 is a large area of current and former USTs within which the soil and groundwater has been contaminated with petroleum hydrocarbons and VOCs. Approximately 95 percent of these UST locations have received regulatory closure (Beale AFB 2007a). ERP Site ST-22 is on the Cortese List (i.e., listed under Government Code Section 65962.5). It is possible that contaminated material from ERP Site ST-22 could be encountered by workers in the area and this would result in short-term, minor, adverse impacts on health and safety. If contaminated material is encountered during construction, work would be halted and the Beale AFB ERP office would be contacted to ensure that any contaminated material is managed in accordance with ERP guidelines (see **Section 3.4.4**). See **Section 3.11** for more information on impacts on hazardous materials and waste from ERP Site ST-22.

No active MMRP sites are found within the project area for Bridges 2710 or 2720; nor are the project areas within any QD arcs. Although the proposed projects are not within a QD arc, or within UXO or MMRP sites, there is a chance of inadvertent discovery of munitions or UXO during construction activities. If any suspected military munitions or UXO are found during construction activities, work would be halted in that particular area, personnel would move away from the site, and the Beale AFB EOD Flight and Safety Office would be contacted (see **Section 3.4.4**).

Construction would not be expected to result in any interference with emergency response planning or emergency evacuation along Gavin Mandery Drive as the temporary bypass roads would maintain traffic flow. The proposed project would not expose people or structures to an increased risk of wildland fires. The potential for wildland fires in this area is low.

Replacement of Bridges 2710 and 2720 would result in a beneficial impact on health and safety as bridges with the potential to deteriorate and collapse would be replaced; therefore, the potential health and safety risk of these bridges continuing to be in service would be minimized.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on health and safety.

3.4.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Alternative 1 would include the construction of a temporary bypass road in addition to bridge replacement. The impacts from the implementation of Alternative 1 would be the same as those described under the Proposed Action.

3.4.3.2.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive. These bridges would continue to deteriorate and could eventually collapse and pose a health and safety risk to those traveling on Gavin Mandery Drive. Long-term, minor impacts would be anticipated.

3.4.3.3 *Implement the Base Demolition Plan*

3.4.3.3.1 *Proposed Action*

Short-term, minor, adverse impacts on safety would be anticipated from implementation of the Base Demolition Plan at Beale AFB.

Building 355. Short-term, minor, adverse impacts on safety would be anticipated from the proposed project due to the potential slight increase in the short-term risks associated with construction activities that would occur during the normal workday. During all phases of the proposed project, safety standards required by OSHA and NIOSH would be followed. Workers would be required to wear PPE such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs and placards. Construction equipment and associated trucks transporting material to and from the construction site would be directed to roads and streets that carry the least traffic.

The demolition of Building 355 would be within ERP Site ST-22. ST-22 is a large area of current and former USTs within which the soil and groundwater has been contaminated with petroleum hydrocarbons and VOCs. Approximately 95 percent of these UST locations have received regulatory closure (Beale AFB 2007a). ERP Site ST-22 is on the Cortese List (i.e., listed under Government Code Section 65962.5). It is possible that contaminated material from ERP Site ST-22 could be encountered by workers in the area and this would result in short-term, minor, adverse impacts on health and safety. If contaminated material is encountered during construction, work would be halted and the Beale AFB ERP office would be contacted to ensure that any contaminated material is managed in accordance with ERP guidelines (see **Section 3.4.4**). See **Section 3.11** for more information on impacts on hazardous materials and waste from ERP Site ST-22.

No active MMRP sites are found near Building 355; nor is the project area within any QD arcs. Although the proposed project is not within a QD arc, or within UXO or MMRP sites, there is a chance of inadvertent discovery of munitions or UXO during construction activities. If any suspected military

munitions or UXO are found during construction activities, work would be halted in that particular area, personnel would move away from the site, and the Beale AFB EOD Flight and Safety Office would be contacted (see **Section 3.4.4**).

Demolition of Building 355 is not anticipated to impact emergency preparedness or the ability to respond to an emergency. The proposed project would not expose people or structures to an increased risk of wildland fires. The potential for wildland fires in this area is low.

Exposure to ACMs or LBP could be experienced during demolition activities, but adherence to all Federal, state, and local regulations and Beale AFB management plans would reduce these effects. Long-term, negligible to minor, beneficial effects on safety would be experienced from the removal of ACMs and LBP materials by reducing potential exposure to personnel.

Building 1028. The demolition of Building 1028 would have similar impacts on health and safety as those described for the demolition of Building 355. Building 1028 would be within ERP Sites SD-01 and SD-32. SD-01 is a storm sewer outfall 800 feet west of the runway. Polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbon, and total petroleum hydrocarbons (TPHs) have been found in sediment in the drainage; VOCs have been detected in the groundwater. SD-32 is believed to be the source of groundwater contamination in the flightline area; VOCs have been detected in the soil and groundwater (Beale AFB 2007a). ERP Sites SD-01 and SD-32 are on the Cortese List (i.e., listed under Government Code Section 65962.5). It is possible that contaminated material from ERP Sites SD-01 and SD-32 could be encountered by workers in the area and this would result in short-term, minor, adverse impacts on health and safety. If contaminated material is encountered during construction, work would be halted and the Beale AFB ERP office would be contacted to ensure that any contaminated material is managed in accordance with ERP guidelines (see **Section 3.4.4**). See **Section 3.11** for more information on impacts on hazardous materials and waste from ERP Sites SD-01 and SD-32. Building 1028 would not be within or adjacent to any MMRP Sites or QD arcs. It is not anticipated to impact emergency preparedness or the ability to respond to an emergency.

Building 2459. The demolition of Building 2459 would have similar impacts on health and safety as those described for the demolition of Building 355. Building 2459 would be within ERP Sites ST-22 and SS-39. ST-22 is a large area of current and former USTs within which the soil and groundwater has been contaminated with TPHs and VOCs. Approximately 95 percent of these UST locations have received regulatory closure. SS-39 encompasses Building 2459 and the surrounding area. VOCs have been detected in the soil and groundwater (Beale AFB 2007a). ERP Sites ST-22 and SS-39 are on the Cortese List (i.e., listed under Government Code Section 65962.5). It is possible that contaminated material from ERP Sites ST-22 and SS-39 could be encountered by workers in the area and this would result in short-term, minor, adverse impacts on health and safety. If contaminated material is encountered during construction, work would be halted and the Beale AFB ERP office would be contacted to ensure that any contaminated material is managed in accordance with ERP guidelines (see **Section 3.4.4**). See **Section 3.11** for more information on impacts on hazardous materials and waste from ERP Sites ST-22 and SS-39. Building 2459 would not be within or adjacent to any MMRP Sites or QD arcs. It is not anticipated to impact emergency preparedness or the ability to respond to an emergency.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. The demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would have similar impacts on health and safety as those described for the demolition of Building 355. This demolition project would not be within or adjacent to any active ERP Sites, MMRP Sites, or QD arcs. It is not anticipated to impact emergency preparedness or the ability to respond to an emergency.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on health and safety.

3.4.3.3.2 *Alternatives*

No alternatives for the implementation of the Base Demolition Plan were carried forward for analysis.

3.4.3.3.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the identified buildings would not be demolished. This would result in long-term, minor health and safety impacts as there would be the continued risk of exposure to ACMs and LBPs in the buildings proposed for demolition.

3.4.4 Environmental Protection Measures

Measure 1: Ground Safety Requirements and Coordination. All contractors performing construction and demolition activities at Beale AFB are responsible for following ground safety regulations and worker compensation programs. In addition, all contractors are required to conduct construction and demolition activities in a manner that does not pose any risk to its workers or installation personnel. An industrial hygiene program would address exposure to hazardous materials, use of PPE, and the availability of MSDSs. Industrial hygiene is the responsibility of contractors, as applicable.

Measure 2: Munitions and UXO Advisory. If any suspected military munitions or UXO are found during construction and demolition activities, work would stop in the area, personnel would move away from the site, and the Beale AFB EOD and Flight and Safety offices would be contacted.

Measure 3: Health and Safety Plan and ERP Waiver Coordination. Although there is a low likelihood for construction workers to be exposed to contamination from ERP sites during construction or demolition, it is recommended that a health and safety plan be prepared by the contractor in accordance with OSHA requirements prior to commencement of construction or demolition activities proximate to ERP sites. Should contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and Beale AFB programs and procedures. Workers at the ERP sites identified in this EA would either have OSHA 40-hour Hazardous Waste Operations and Emergency Response training, or a supervisor would have OSHA Site Supervisor certification. Current site-specific information about contamination, UST sites, and ERP infrastructure on and around each project site would be obtained prior to construction or demolition activities, and site-specific health and safety plans would be prepared. Project planning would include protection of ERP infrastructure such as monitoring wells, treatment systems, and conveyance pipes to avoid disruption of clean-up activities. Prior to the start of any construction involving an ERP site, a waiver request would be submitted to HQ ACC for approval. If contaminated material is encountered during construction and demolition activities, work would be halted in the area and the Beale AFB ERP Office would be contacted.

Measure 4: Road Closure Coordination. Beale AFB would coordinate with Beale AFB Security Forces regarding road and lane closures and appropriate signage prior to commencement of any construction activities.

3.5 Geology and Soils

3.5.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography and soils, and, where applicable, geologic hazards and paleontology.

Geology. Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information is derived from field analysis based on observations of the surface and borings to identify subsurface composition.

Topography. Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Soils. Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Geology and Soil Hazards. Geologic hazards are defined as a natural geologic event that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes, landslides, rock falls, ground subsidence, and avalanches.

3.5.2 Existing Conditions

Geology. Beale AFB is located on the boundary of the Great Valley and Sierra Nevada Geologic Provinces. The Great Valley Province consists of a deep, northwest-trending sedimentary basin that borders the eastern side of the Coast Ranges. It formed as a basin between the Coast Range Province on the west and the Sierra Nevada Province on the east. The basin has filled with alluvial deposits from the erosion of the Sierra Nevada and the Coast Ranges (Beale AFB 2011a).

The Sierra Nevada Province is characterized by large areas of exposed granite in the mid-elevations to inter-mixed areas of granite, volcanic deposits, and glacial deposits in the upper elevations. Four geomorphic units (i.e., surface features) associated with the Great Valley Province cover most of Beale AFB: river floodplains and channels of the Modesto Formation, low alluvial plains and fans of the Riverbank Formation, and dissected uplands of the Mehrten and Laguna Formations. A fifth geomorphic unit, metavolcanic rock, occurs in the eastern portion of the base and is characteristic of the Sierra Nevada foothills (Beale AFB 2011a).

Surficial geologic features surrounding Beale AFB primarily consist of unconsolidated sedimentary, metasedimentary, and igneous (volcanic) materials that have eroded off of nearby mountains or been deposited by streams and storm events. The river floodplains and channels associated with the Modesto Formation lie along major drainages. As these streams have meandered, they have deposited sand and gravel along their channels and silt and clay on their floodplains. These deposits range in thickness from 1 to 100 feet (Beale AFB 2011a).

The Riverbank Formation, found in the western portions of the installation, is generally flat to gently rolling. The Mehrten Formation, located in the northern portion of the installation, composes dissected uplands consisting of volcanic mudflows that have been cut by stream activity. Dissected uplands of the

Laguna Formation, found in central portions of the installation, range from gently rolling to dissected hills. The metavolcanic rock found in the eastern portion of the base includes rock outcrops consisting of older, consolidated sedimentary rocks (Beale AFB 2011a).

Topography. The western and central portions of Beale AFB are flat to gently rolling grassland, and gently rolling to dissected hills in the central part of the installation. The eastern portion of Beale AFB has low rolling hills, which gradually merge with the foothills of the Sierra Nevada Range. The topography becomes progressively steeper toward the east, with elevations exceeding 500 feet above mean sea level (MSL) in some locations. Elevations range from approximately 90 feet along the western and southwestern installation boundaries, to more than 500 feet above MSL at the northeastern boundary (Beale AFB 2011a). In general, topography and physiography do not constrain development at Beale AFB. However, in contrast to the rest of the installation, the eastern third of Beale AFB has slopes greater than 10 percent. The largest area unsuitable for development due to slope is generally between Dry Creek Saddle Club, the north-northeastern edges of the MFH area, and the east-central installation boundary and is bisected by Dry Creek (Beale AFB 2011a).

Soils. Soil types on Beale AFB can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The Main Base and Flight Line areas are on the valley soils. MFH is on the foothill soils (see **Figure 3-4**). The soils at Beale AFB limit the construction period on the installation to the dry season (May to November), due to their high clay content and an underlying hardpan. During the winter, soils at the installation become extremely soft and limit any off-road activities (Beale AFB 2011a).

The valley soils are high in clay content, underlain by a hardpan, and have a slow permeability, a shallow rooting depth, are droughty, and have a slope of 0 to 3 percent. These soils favor annual grasses and forbes. Three soil types in the valley soils could be considered prime farmland soils, if irrigated. However, cropping limitations on the soils included fertility, flooding, and mound microrelief. Building restrictions include flooding, cemented hardpan, and high shrink swell potential (Beale AFB 2011a).

The foothill soils are considered suitable for wildlife habitat and livestock grazing. These soils favor native oaks, shrubs, forbs, and annual grasses. Restrictions on these soils include soil depth, slope variability (3 to 75 percent), and high erosion potential. Building restrictions include slope, depth to bedrock, and high shrink swell potential (Beale AFB 2011a).

There are ten soil series found on Beale AFB. These are grouped by the Natural Resources Conservation Service (NRCS) according to their topographic positions and drainage characteristics. These soil types are the Auburn loam, Argonaut-Auburn loams, Auburn-Sobrante loams, Auburn-Sobrante-rock outcrop complex, Conejo loam, Pardee gravelly loam, Pardee-Rancho Seco complex, Perkins loam, Redding-Corning complex, and San Joaquin loam (Beale AFB 2007b).

Of the ten soil series mapped on Beale AFB, four soils are considered hydric by the NRCS: San Joaquin loam, Redding-Corning Complex, Pardee-Rancho Seco complex, and Pardee gravelly loam. These soil series are designated as hydric soils because they support areas that are frequently inundated or saturated for a long or very long duration (i.e., flooding that ranges from 7 days to 1 month following a single storm) during the growing season.

The landfill sites at Beale AFB have been designated as pits and dumps. The soils associated with this designation vary greatly from site to site and can constitute a mixture of soil types from numerous sources (Beale AFB 2011a).

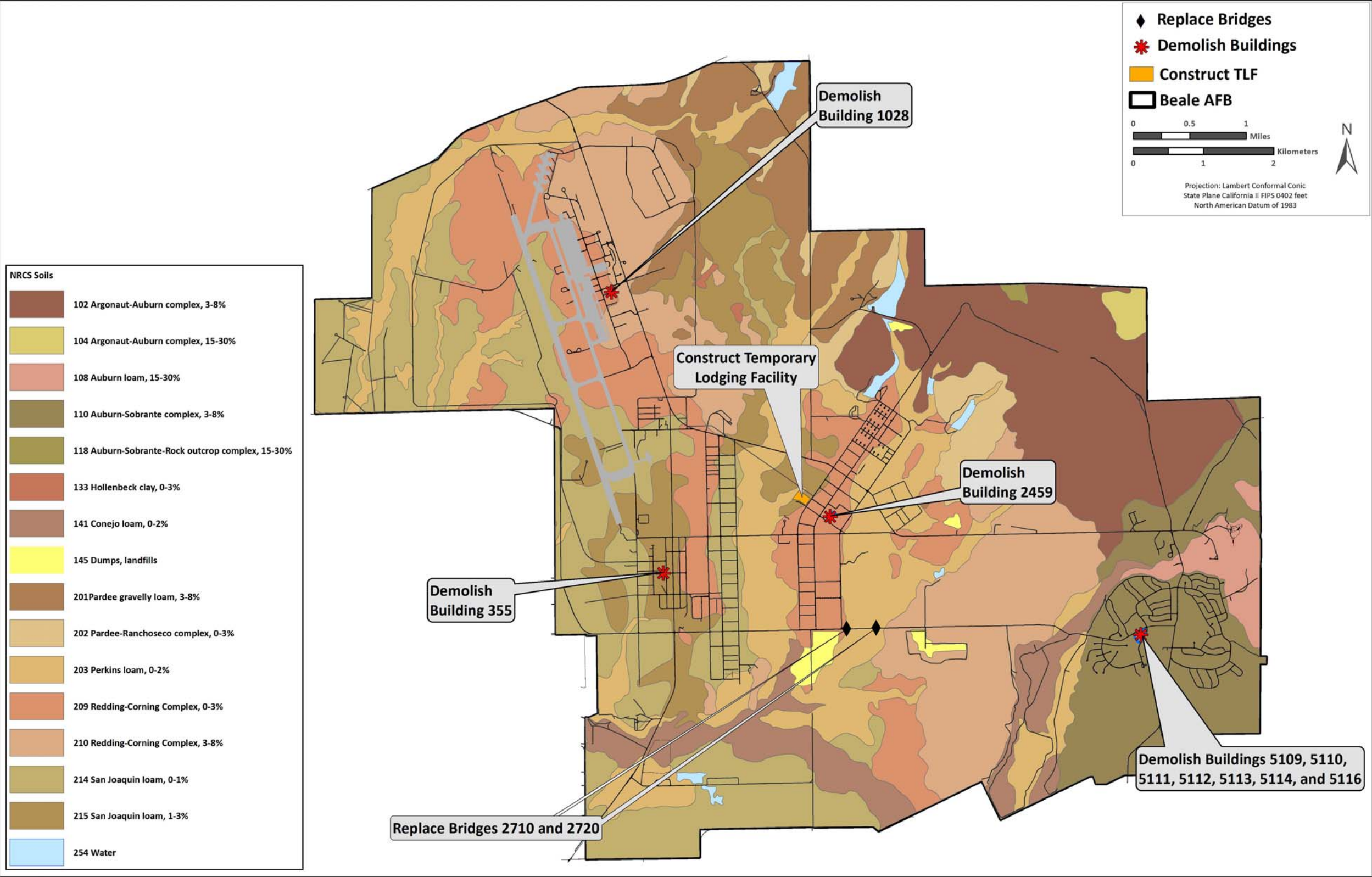


Figure 3-4. Soils at Beale AFB

Geologic Hazards. There are no known earthquake fault zones within Beale AFB boundaries (Beale AFB 2010a, Beale AFB 2008). The nearest mapped faults in the area include a shear zone located approximately 2 miles east of the installation. The most recent seismic activity was a minor event in 1975 along the Cleveland Hill Fault, approximately 25 miles north of the installation (Beale AFB 2008).

Geologic features of Beale AFB do not constrain development (Beale AFB 2008). However, all projects designed at Beale AFB are required to meet current California seismic standards and the Uniform Building Code, which has specific site development and construction standards by soil type to prevent expansive soil hazards.

3.5.3 Environmental Consequences

Analysis of potential impacts on geology and soils typically includes identification and description of resources that could be affected, examination of a proposed action and the potential effects this action could have on the resource, assessment of the significance of potential impacts, and provision of mitigation measures in the event potentially significant impacts are identified. Impacts on geology and soils could be adverse if they changed the composition, structure or function of these resources within the environment.

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating the potential impacts of a proposed action on geologic and soil resources. Generally, adverse impacts can be avoided or minimized with proper construction techniques, erosion-control measures, and structural engineering design incorporated into project development.

Overall Construction Impacts. Short-term, minor to moderate, direct, adverse impacts on soils would be anticipated from the Proposed Action and alternatives as a result of construction activities, such as excavation, trenching, and recontouring of soils. Clearing of vegetation would increase erosion and sedimentation potential. Erosion-and-Sediment-Control Plans (ESCPs) would be developed and implemented both during and following site development to contain soil and runoff on site, and would reduce potential for adverse effects associated with erosion and sedimentation and transport of sediments in runoff.

Prior to any construction activities taking place in the vicinity of or within an ERP site, any areas of soil, pavement, or building surfaces that appear to have been contaminated by hazardous or petroleum wastes would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances and contaminated soils would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and Beale AFB management procedures. Long-term, beneficial effects could occur from the remediation of contaminated soils and if the site is revegetated. Revegetation with native vegetation or grasses would decrease rates of erosion and sedimentation and promote soil productivity.

Implementation of additional BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from storm water runoff would be followed to reduce the potential for soil erosion. Implementation of environmental protection measures during construction activities would limit adverse impacts on geology and soils. Standard erosion-control measures (e.g., silt fencing, sediment traps, and application of water sprays) would reduce adverse impacts associated with those activities.

Overall Operational Impacts. Operation and maintenance activities would be expected to result in long-term, negligible to moderate, adverse effects on soils. Long-term, adverse impacts would be expected from compaction of soils under the weight of vehicles and other construction equipment. Compaction of soils would result in disturbance and modification of soil structure. Soil productivity, which is the capacity of the soil to produce vegetative biomass, would decline in disturbed areas and be eliminated in those areas within the footprint of roadways. Loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. Areas outside of the footprint of the road would be revegetated once construction activities have ceased.

Adverse effects on humans and property could occur in the event of earthquake activity. Any new construction under the proposed project would be designed consistent with requirements established in UFC 3-310-03, *Seismic Design for Buildings*, and EO 12699, *Seismic Safety*, which would reduce the potential for adverse effects on humans associated with structural failure during or following a seismic event.

3.5.3.1 Construct Temporary Lodging Facility

3.5.3.1.1 Proposed Action

Construction of the TLF would be expected to result in short-term, moderate, and long-term, minor, adverse effects on geology and soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, excavation, and support installation to accommodate the facility. Clearing of vegetation would increase erosion and sedimentation potential. Implementation of BMPs would reduce adverse impacts associated with those activities.

Implementation of BMPs identified in the Integrated Contingency Plan (ICP) would minimize the potential for and extent of contamination from accidental spills. Additionally, implementation of BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from storm water runoff would be followed to reduce the potential for soil erosion. Standard erosion-control measures (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) would reduce adverse impacts associated with those activities.

Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of new impervious surface area. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion-and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. Foundation and building supports will likely be installed in the surficial geology underlying the site. However, negligible effects on geology would be anticipated from implementing the Proposed Action, as no geologic formations would be changed and no geologic hazards would be exacerbated by the action. No impacts on topography are anticipated to occur.

Summary. Impacts on soils from the Proposed Action would be short-term, moderate, direct, and adverse, and long-term, minor, and adverse. All new construction would be designed consistent with requirements established in UFC 3-310-03, *Seismic Design for Buildings*, and EO 12699, *Seismic Safety*, which would reduce the potential for adverse effects on humans associated with structural failure during or following a seismic event. No short- or long-term, direct or indirect, adverse impacts on geology, topography, or geologic hazards at Beale AFB are anticipated. Construction and operational activities associated with the Proposed Action would not have a significant impact on geology and soils.

3.5.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.5.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct a TLF. The proposed sites for the facilities would not be developed and no new impacts on geology and soils would occur.

3.5.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.5.3.2.1 *Proposed Action*

Short-term, minor, direct, adverse impacts on soils would be anticipated from the Proposed Action due to construction activities, including use of heavy equipment, excavation, and recontouring of the soil on both sides of the bridges. Soils would be disturbed, vegetation would be cleared, and grading would occur. Clearing of vegetation would increase erosion and sedimentation potential. ESCPs would be developed and implemented both during and following site development to contain soil and runoff on site, and would reduce potential for adverse effects associated with erosion and sedimentation and transport of sediments in runoff.

Implementation of BMPs identified in the ICP would minimize the potential for and extent of contamination from accidental spills. Additionally, implementation of BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from storm water runoff would be followed to reduce the potential for soil erosion. Standard erosion-control measures (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) would reduce adverse impacts associated with those activities.

As a result of maintenance activities, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of new impervious surface area. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The new bridges would be designed consistent with requirements established in UFC 3-310-03, *Seismic Design for Buildings*, and EO 12699, *Seismic Safety*, which would reduce the potential for adverse effects on humans associated with structural failure during or following a seismic event. No impacts on geology or topography are anticipated to occur.

Summary. Impacts on soils from the replacement of Bridges 2710 and 2720 on Gavin Mandery would be short-term, minor, direct, and adverse, and long-term and negligible. No short- or long-term, direct or indirect, adverse impacts on geology, topography, or geologic hazards at Beale AFB are anticipated. Construction and operational activities associated with the Proposed Action would not have a significant impact on geology and soils.

3.5.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Alternative 1 would include the construction of a temporary

bypass road in addition to bridge replacement. The construction of the bypass road would not result in any additional impacts beyond those described under the Proposed Action.

3.5.3.2.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive. As a result, no impacts on geology and soils would occur from this alternative.

3.5.3.3 *Implement the Base Demolition Plan*

3.5.3.3.1 *Proposed Action*

Short-term, direct, minor to moderate, adverse effects would be expected on soils as a result of demolition activities under the Proposed Action. During demolition, vegetation would be disturbed and surrounding soils would be compacted under the weight of construction equipment, which could result in temporary increased soil erosion and transport in storm water runoff during activities. Adverse effects would be minimized with implementation of BMPs including wetting of soils, and implementation of erosion and storm water management practices to contain soil and runoff on site. Berming along nearby water bodies would decrease the amount of potential sedimentation in adjacent water bodies. Wetting of soils would occur on a daily basis as needed to prevent erosion and generation of dust. Long-term, direct, minor, beneficial effects would be expected due to increased pervious surface areas on the installation, resulting in increased storm water percolation, and from revegetation efforts. No impacts on geology or topography would be anticipated from this action.

Building 355. The footprint of demolition activities for this building would total 37,026 ft² (0.85 acres). Short-term, direct, minor, adverse effects would be expected on soils as a result of demolition activities associated with Building 355. No impacts on geology or topography would occur.

Building 1028. The footprint of demolition activities for this building would total 219 ft² (0.01 acres). Short-term, direct, minor, adverse effects would be expected on soils as a result of demolition activities associated with Building 1028. No impacts on geology or topography would occur.

Building 2459. The footprint of demolition activities for this building would total 62,291 ft² (1.43 acres). Short-term, direct, minor, adverse effects would be expected on soils as a result of demolition activities associated with Building 2459. No impacts on geology or topography would occur.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. The footprint of demolition activities for these seven buildings would total 237,186 (5.45 acres). Short-term, direct, minor, adverse effects would be expected on soils as a result of demolition activities. No impacts on geology or topography would occur.

Summary. No short- or long-term, direct or indirect, adverse impacts on geology, topography, or geologic hazards at Beale AFB are anticipated from implementation of the Base Demolition Plan. Construction and operational activities associated with the Proposed Action would not have a significant impact on geology and soils.

3.5.3.3.2 *Alternatives*

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.5.3.3.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the identified buildings would not be demolished. If the No Action Alternative was implemented, Beale AFB would have to continue to ensure the physical integrity of the outdated and unused buildings to prevent migration of LBP and ACMs into surrounding soil. Contamination of the soil with lead or asbestos would result in direct, minor to moderate, adverse impacts, depending on the extent of contamination and timing of remediation. Additionally, the long-term, minor, beneficial impacts resulting from restoration of pervious surface area at both Beale AFB under the Proposed Action would not be realized by this alternative.

3.5.4 Environmental Protection Measures

Measure 1: ICP Best Management Practices. Implementation of BMPs identified in the ICP would minimize the potential for and extent of contamination from accidental spills. Additionally, implementation of BMPs such as stabilizing fill slopes from erosion and the use of erosion-control measures to filter sediment from storm water runoff would be followed to reduce the potential for soil erosion. Standard erosion-control measures (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed areas) would reduce adverse impacts associated with construction and demolition activities.

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources are natural and man-made sources of water that are available for use by and for the benefit of humans and the environment. Water resources relevant to Beale AFB include groundwater, floodplains, surface water, and wetlands. Evaluation of water resources examines the quantity and quality of the resources and their demand for various purposes.

Groundwater. Groundwater is water that exists in the saturated zone beneath the earth's surface, and includes underground streams and aquifers. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations. Groundwater quality and quantity are regulated under several different programs. The Federal Underground Injection Control regulations, authorized under the Safe Drinking Water Act, require a permit for the discharge or disposal of fluids into a well. The Federal Sole Source Aquifer regulations, also authorized under the Safe Drinking Water Act, protect aquifers that are critical to water supply.

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. The living and nonliving parts of natural flood zones interact with each other to create dynamic systems in which each component helps to maintain the characteristics of the environment that supports it. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and a diversity of plants and animals. Floodplains provide a broad area to spread out and temporarily store floodwaters. This reduces flood peaks and velocities and the potential for erosion. In their natural vegetated state, flood zones slow the rate at which the incoming overland flow reaches the main water body (FEMA 1986).

Risk of flooding typically depends on local topography, the frequency and magnitude of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain as the area that has a one percent chance of inundation by a flood event in a given year.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a Proposed Action would occur within a flood zone. This determination typically involves consultation of FEMA Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the project area to nearby floodplains. EO 11988 directs Federal agencies to avoid flood zones unless the agency determines that there is no practicable alternative.

Surface Water. Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

Waters of the United States are defined within the Clean Water Act (CWA), as amended, and are regulated by the USEPA and the USACE. The CWA mandates the National Pollutant Discharge Elimination System (NPDES) program, which requires a permit for any discharge of pollutants into waters of the United States. In California, the State or Regional Water Quality Control Boards issue NPDES permits.

The USEPA issued a Final Rule for the CWA concerning technology-based Effluent Limitations Guidelines and New Source Performance Standards for the Construction and Development point source category. All NPDES storm water permits issued by the USEPA or states must incorporate requirements established in the Final Rule. This Rule is effective 1 February 2010 and will be phased in over 4 years. All new construction sites are required to meet the non-numeric effluent limitations and to design, install, and maintain effective erosion and sedimentation controls, including the following:

- Control storm water volume and velocity to minimize erosion
- Minimize the amount of soil exposed during construction activities
- Minimize the disturbance of steep slopes
- Minimize sediment discharges from the site
- Provide and maintain natural buffers around surface waters
- Minimize soil compaction and preserve topsoil where feasible.

In addition, construction site owners and operators that disturb one or more acres of land are required to obtain a General Permit for construction activities. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The permit mandates use of BMPs to ensure that soil disturbed during construction activities does not pollute nearby water bodies. Effective 1 August 2011, construction activities disturbing 20 or more acres must comply with the numeric effluent limitation for turbidity in addition to the non-numeric effluent limitations. On 2 February 2014, construction site owners and operators that disturb 10 or more acres of land are required to monitor discharges to ensure compliance with effluent limitations as specified by the permitting authority. The USEPA's limitations are based on its assessment of what specific technologies can reliably be achieved. Permittees can select management practices or technologies that are best suited for site-specific conditions.

Section 438 of the Energy Independence and Security Act (42 U.S.C. 17094) establishes into law new storm water design requirements for Federal construction projects that disturb a footprint of greater than 5,000 ft² (0.11 acres) of land. Section 438 requirements are independent of storm water requirements under the CWA. Under these requirements, predevelopment site hydrology must be maintained or

restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. Predevelopment hydrology should be modeled or calculated using recognized tools and must include site-specific factors such as soil type, ground cover, and ground slope. Site design should incorporate storm water detention and reuse technologies such as bioretention areas, permeable pavements, cisterns/recycling, and green roofs to the maximum extent technically feasible (USEPA 2009).

Wetlands. Wetlands perform several hydrologic functions, including water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the waters of the United States under Section 404 of the CWA. The USACE defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 329).

EO 11990, *Protection of Wetlands* (24 May 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

There are both jurisdictional and non-jurisdictional wetlands on Beale AFB. Jurisdictional wetlands are special aquatic sites that have a hydrological connection to jurisdictional waters of the United States. All jurisdictional waters of the United States are regulated by the USACE, under the oversight of the USEPA or state equivalents (e.g., CRWQCB). Typically only the placement of fill into jurisdictional wetlands is regulated. Fill can be defined as nearly anything being placed into a wetland on a long-term basis.

California relies primarily on Section 401 of the CWA (i.e., water quality certification) and the Porter-Cologne Water Quality Control Act to regulate wetlands statewide. Under CWA Section 401 every applicant for a Federal permit or license for any activity which could result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards. Most certifications are issued in connection with USACE CWA Section 404 permits for dredge and fill discharges.

3.6.2 Existing Conditions

Information in this section is based on the Beale AFB INRMP (Beale AFB 2011a), Light Detection and Ranging data provided by the Beale AFB Environmental Office, and other Beale AFB environmental documents. Issues related to groundwater impacts are discussed in **Section 3.6.3, Groundwater**. All impacts on 100-year floodplains are discussed in **Section 3.6.3, Floodplains**. Drainage, open water ditches, swales, and other waters of the United States are discussed under **Surface Water** and vernal pools and other wetlands are discussed under **Wetlands**.

Groundwater. Groundwater at Beale AFB occurs 300 to 500 feet below ground surface in the Central Valley groundwater basin. However, groundwater associated with the well field aquifer west of the flightline comes to approximately 144 feet below the surface (Beale AFB 2011a). Groundwater at Beale AFB is generally encountered within approximately 4 to 100 feet below ground surface at monitoring wells located throughout the installation. The Central Valley groundwater basin is presumed to originate in unconfined aquifer materials with local clay/silt lenses overlaying the groundwater basin.

Groundwater in the northern portion of Beale AFB is recharged from the Yuba River drainage basin and is considered to be the highest quality groundwater on the installation because it contains low levels of total dissolved solids, nitrates, and sulfates (Beale AFB 2011a). Groundwater in the central portion of Beale AFB contains higher levels of total dissolved solids and nitrates. Groundwater from the southern portion of Beale AFB, which receives its recharge from Dry Creek and Bear River, has a water quality between that of the northern and central portion of the installation. Groundwater has been impacted by former installation activities and is monitored and sampled under the ERP. Groundwater generally flows west to southwest across the installation. Water for domestic use at Beale AFB is provided from seven deep wells located west of the flightline area. Total water use at the installation varies from 2.5 to 6.0 million gallons per day (mgd). The wells have a total combined pumping capacity of 12.0 mgd (Beale AFB 2011a).

Floodplains. Floodplains at Beale AFB occur adjacent to rivers and major creeks, with the 100-year floodplain occurring in several areas associated with the Proposed Action.

Surface Water and Wetlands. Within the project areas there are roadside ditches, swales, and vernal pools that meet the criteria for jurisdictional waters of the United States (some of the roadside ditches are not jurisdictional waters of the United States). Locations and extent of wetlands, including vernal pools, and waters of the United States identified on, or in the vicinity of, the proposed project areas on Beale AFB are based on Light Detection and Ranging data (Lichvar et al. 2006).

3.6.3 Environmental Consequences

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of wetlands; and associated regulations. A Proposed Action could have a significant effect with respect to water resources if any the following were to occur:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality adversely
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential effect of flood hazards on a Proposed Action is important if such an action occurs in an area with a high probability of flooding. Several of the projects occur within the 100-year floodplain. Impacts to floodplains are considered direct when they occur within the project footprint.

Overall Construction Impacts. No impacts on groundwater or water quality would be expected as a result of the Proposed Action. Long-term, beneficial impacts would be expected from a reduction in impermeable surfaces and an increase in permeable surface area upon completion of demolition activities.

The construction of the TLF would result in a permanent loss of, and long-term, direct, adverse impacts on 0.048 acres of waters of the United States within the footprint of the TLF (see **Figure 3-5**); therefore, this project would require consideration of practicable alternatives and practicable measures to minimize impacts to support a FONPA, approval from HQ ACC, CWA Section 401 water quality certifications, and CWA Section 404 permits. Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid or minimize adverse impacts. All applicable CWA Section 404

permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities.

The project for the replacement of Bridges 2710 and 2720 would occur in the 100-year floodplain and, therefore, would require a FONPA and approval from HQ ACC. An approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would be expected.

Overall Operational Impacts. No significant operational impacts on water resources would be expected. Long-term impacts on surface waters and wetlands would be expected; however, relative to the total amount of surface waters and wetlands on the installation, impacts are not expected to be significant. Upon completion of construction of Bridges 2710 and 2720, no impacts would be expected from the use of the bridges. No operational impacts would be expected in the areas associated with building demolition.

3.6.3.1 Construct Temporary Lodging Facility

3.6.3.1.1 Proposed Action

Short- and long-term, direct and indirect, minor, adverse impacts on water resources would be expected from construction of the TLF.

Groundwater. No impacts on groundwater or water quality would be expected from construction of the TLF. The anticipated impact area for this project is approximately 317,988 ft² (7.3 acres). Potential increases in water demand associated with the Proposed Action would be temporary and are not anticipated to exceed existing capacity. Construction and operation of the TLF is not anticipated to impact water quality associated with the aquifers on Beale AFB. Therefore, no adverse impacts on groundwater would be expected.

Floodplains. No impacts on floodplains would be expected from construction of the TLF. The closest 100-year floodplain is approximately 700 feet to the west of the project area. **Figure 3-5** shows the water features and floodplains within and near the project area for the proposed TLF. While an existing drainage ditch does lead to the area associated with the floodplain, adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid impacts.

Surface Water. Short- and long-term, direct, minor, adverse impacts on surface waters would be expected from construction of the TLF. There are approximately 0.048 acres of potential waters of the United States within the project footprint, including 0.007 acres of vernal pools and 0.041 acres of swales and other wetlands (see **Figure 3-5**); therefore, this project would require a FONPA and approval from HQ ACC. All applicable CWA 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities.

During construction activities, runoff from site improvements could result in a slight increase in turbidity. Potential impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and storm water management practices to contain soil and runoff on the project area (see **Section 3.6.4** and **Table 2-10**).

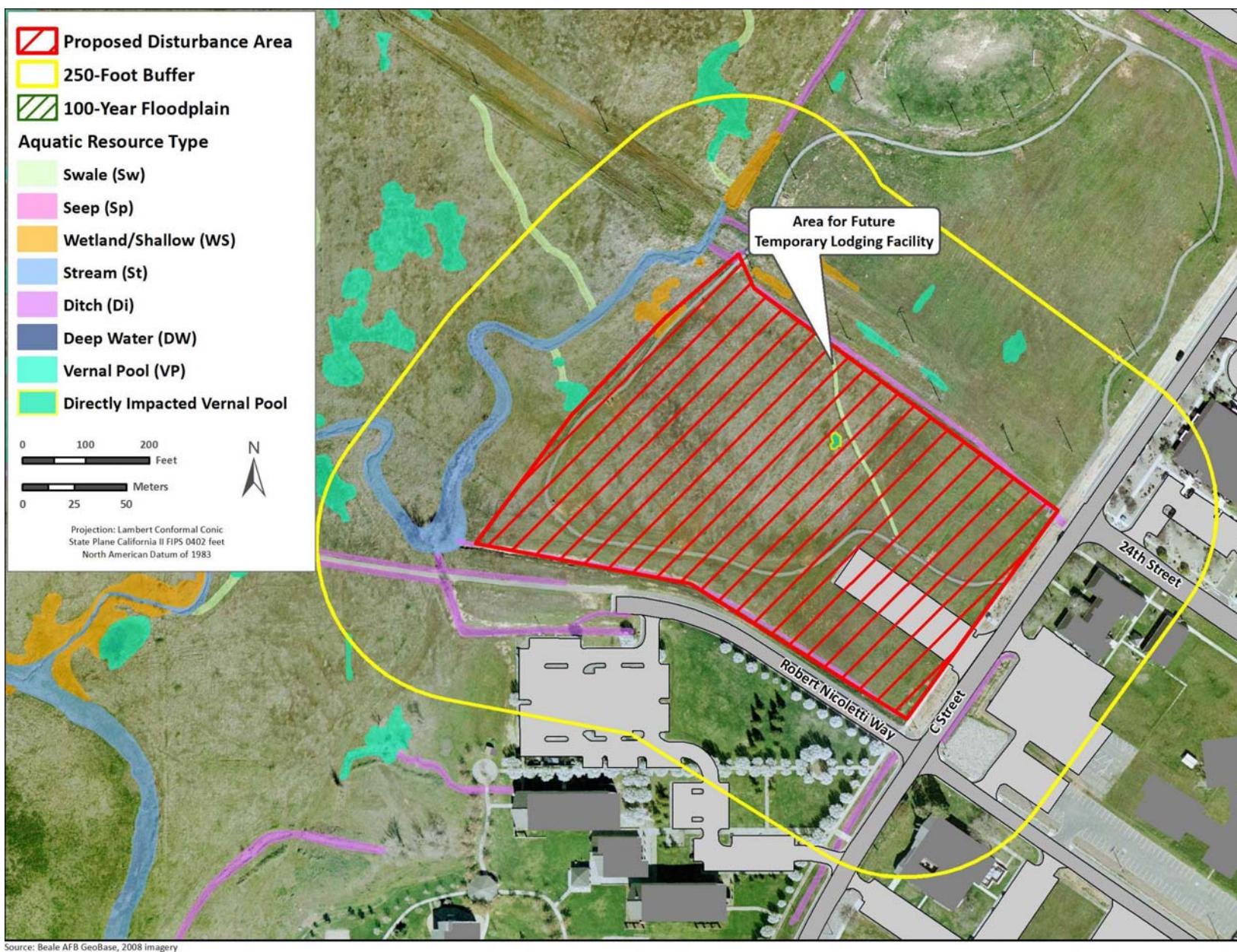


Figure 3-5. Water Features and Floodplains: Temporary Lodging Facility

The construction of the TLF would mean a permanent loss of, and long-term, direct, adverse impacts on, surface waters within the footprint of the TLF. In addition, long-term, adverse impacts would be expected from an increase in impervious surface area upon completion of construction activities. However, overall drainage in the area is not expected to be significantly affected upon completion of construction activities. Additionally, one large retention basin would be developed on the western side of the project site. This drainage might have to be realigned and new culverts might have to be installed during construction to allow adequate water flow. The new drainage and culvert system would be designed so that predevelopment hydrology would be maintained as much as possible and no net loss in drainage would occur. However, this is not expected to have any adverse impacts on surface water in the vicinity of the TLF. Therefore, no significant impacts on surface water would be expected.

Wetlands. Short- and long-term, direct and indirect, minor, adverse impacts on wetlands would be expected from construction of the TLF. The construction of the TLF would mean a permanent loss of, and long-term, direct, adverse impacts on, 0.007 acres of vernal pools and 0.041 acres of swales and other wetlands within the footprint of the TLF (see **Figure 3-5**); therefore, this project would require a FONPA, approval from HQ ACC, CWA Section 401 water quality certifications, and CWA Section 404 permits. Short-term, indirect impacts on wetlands and vernal pools within the 250-foot buffer area would be expected from construction activities. However, adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid or minimize adverse impacts. All applicable CWA Section 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities.

Summary. Construction and operational activities associated with the Proposed Action would not result in significant impacts on water resources. No impacts on groundwater, water quality, or floodplains would be expected. Approximately 0.048 acres of potential waters of the United States would be directly impacted; therefore, this project would require a FONPA and approval from HQ ACC. Adverse impacts on these resources would be minimized with adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**). All applicable CWA 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities.

3.6.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.6.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct a TLF; therefore, no impacts on water resources would be expected.

3.6.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.6.3.2.1 *Proposed Action*

Short-term, direct and indirect, minor, adverse impacts on water resources would be expected from the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive. **Figure 3-6** shows the water features associated with Bridge 2710 and **Figure 3-7** shows the water features associated with Bridge 2720.

Groundwater. No impacts on groundwater or water quality would be expected from the replacement of Bridges 2710 and 2720. Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid adverse impacts.

Floodplains. Construction for the replacement of Bridges 2710 and 2720 would occur within 0.16 acres of the 100-year floodplain; therefore, this project would require a FONPA and approval from HQ ACC. The 0.16 acres of the floodplain would be considered a potential water of the United States. However, because the replacement of Bridges 2710 and 2720 would occur during the dry season, dewatering of the creeks would not be required and no impacts would be expected.

Surface Water. Short-term, minor, adverse impacts on surface water would be expected from the replacement of Bridges 2710 and 2720. Bridges 2710 and 2720 cross tributaries of Hutchinson Creek, which are considered waters of the United States. Construction of permanent bridge structures would require fill to be installed in the creek bed; however, the permanent fill required for construction would be limited to the fill required for bridge pilings. There is one stream (0.06 acres) and one ditch (0.005 acres) within the project area for Bridge 2710 (see **Figure 3-6**). There is one stream (0.09 acres) within the project area for Bridge 2720 (see **Figure 3-7**). During construction activities, runoff from site improvements could result in a slight increase in turbidity in surface waters within the project area. Potential impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and storm water management practices to contain soil and runoff on the project area (see **Section 3.6.4** and **Table 2-10**). All applicable CWA 404 permits and Section 401 water quality certifications would be addressed/acquired prior to commencement of construction activities. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. Therefore, no significant impacts on surface water would be expected.

Wetlands. No direct impacts on wetlands would be expected. During preparation of this Environmental Assessment, a wetland assessment was conducted to determine the presence of vernal pools within 250-feet of each project site (**Figure 3-6**). There are 0.36 acres of vernal pools within the 250-foot buffer area for Bridge 2710 and 2720 (see **Figure 3-6** and **3-7**). Short-term, indirect, minor, adverse impacts on vernal pools could occur in areas associated with Bridges 2710 and 2720 during construction activities. Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid or minimize adverse impacts. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented, as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager.

Summary. Construction and operational activities associated with the replacement of Bridges 2710 and 2720 would not result in significant impacts on water resources. No direct impacts on vernal pools or wetlands would be expected. Short-term, direct, negligible, adverse impacts would be expected on approximately 0.16 acres potential waters of the United States during construction activities; therefore, this project would require a FONPA and approval from HQ ACC. Short-term, indirect, minor, adverse impacts could be expected on vernal pools within the 250-foot buffer area for Bridges 2710 and 2720. Potential adverse impacts would be minimized with adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**). All applicable CWA 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities.

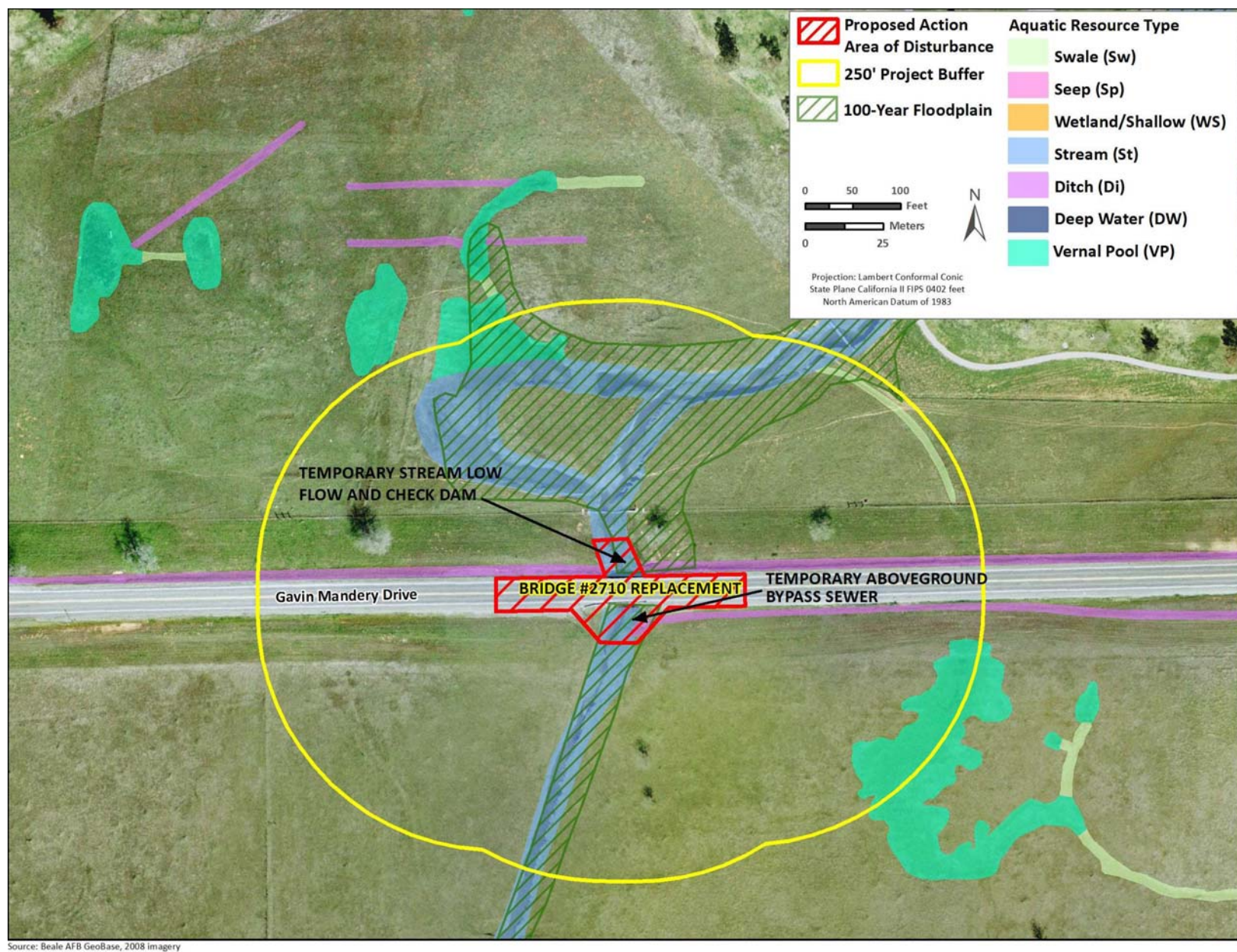


Figure 3-6. Water Features and Floodplains: Proposed Action Replace Bridge 2710

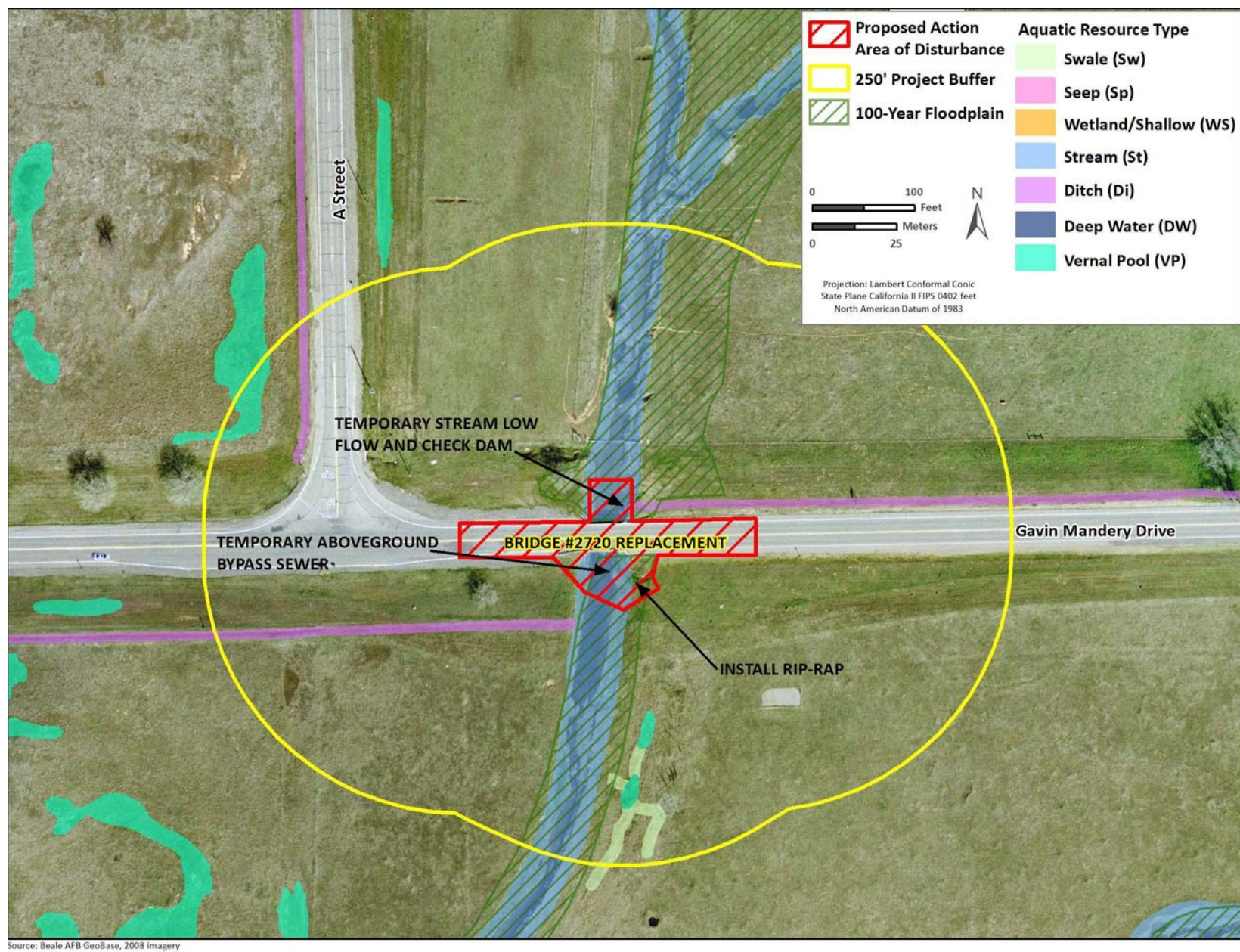


Figure 3-7. Water Features and Floodplains: Proposed Action Replace Bridge 2720

3.6.3.2.2 Alternatives

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Anticipated impacts from Alternative 1 would be similar to, but slightly greater than those described under the Proposed Action (see **Section 3.6.3.2.1**).

Groundwater. No impacts on groundwater or water quality would be expected from implementation of Alternative 1. Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid adverse impacts.

Floodplains. Construction for Alternative 1 for the replacement of Bridges 2710 and 2720 would occur within 0.24 acres of the 100-year floodplain; therefore, this project would require a FONPA and approval from HQ ACC. The 0.24 acres of the floodplain would be considered a potential water of the United States. However, because the replacement of Bridges 2710 and 2720 would occur during the dry season, dewatering of the creeks would not be required and no impacts would be expected.

Surface Water. Potential impacts on surface water from implementation of Alternative 1 would be similar to, but slightly greater than those described under the Proposed Action (see **Section 3.6.3.2.1**). Construction of the temporary bypass roads and permanent bridge structures would require fill to be installed in the creek bed. Bridges 2710 and 2720 cross tributaries of Hutchinson Creek, which are considered waters of the United States. In total from the construction of the bypass road and the replacement of Bridges 2710 and 2720, 0.15 acres of streams and 0.005 acres of ditches would be within the project area. During construction activities, runoff from site improvements could result in a slight increase in turbidity in surface waters within the project area. Potential direct impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and storm water management practices to contain soil and runoff on the project area (see **Section 3.6.4** and **Table 2-10**). All applicable CWA 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. Therefore, no significant impacts on surface water would be expected.

Construction of the temporary bypass road would require fill to be installed in the creek bed. However, upon completion of construction activities, the temporary bypass roads and temporary bridge structures would be removed and the areas would be restored to preexisting conditions. Therefore, no significant impacts would be expected. Implementation of general and species-specific environmental protection measures would minimize impacts as a result of Alternative 1 (see **Section 3.7.4** and **Table 2-10**). Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid or minimize adverse effects. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented, as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager.

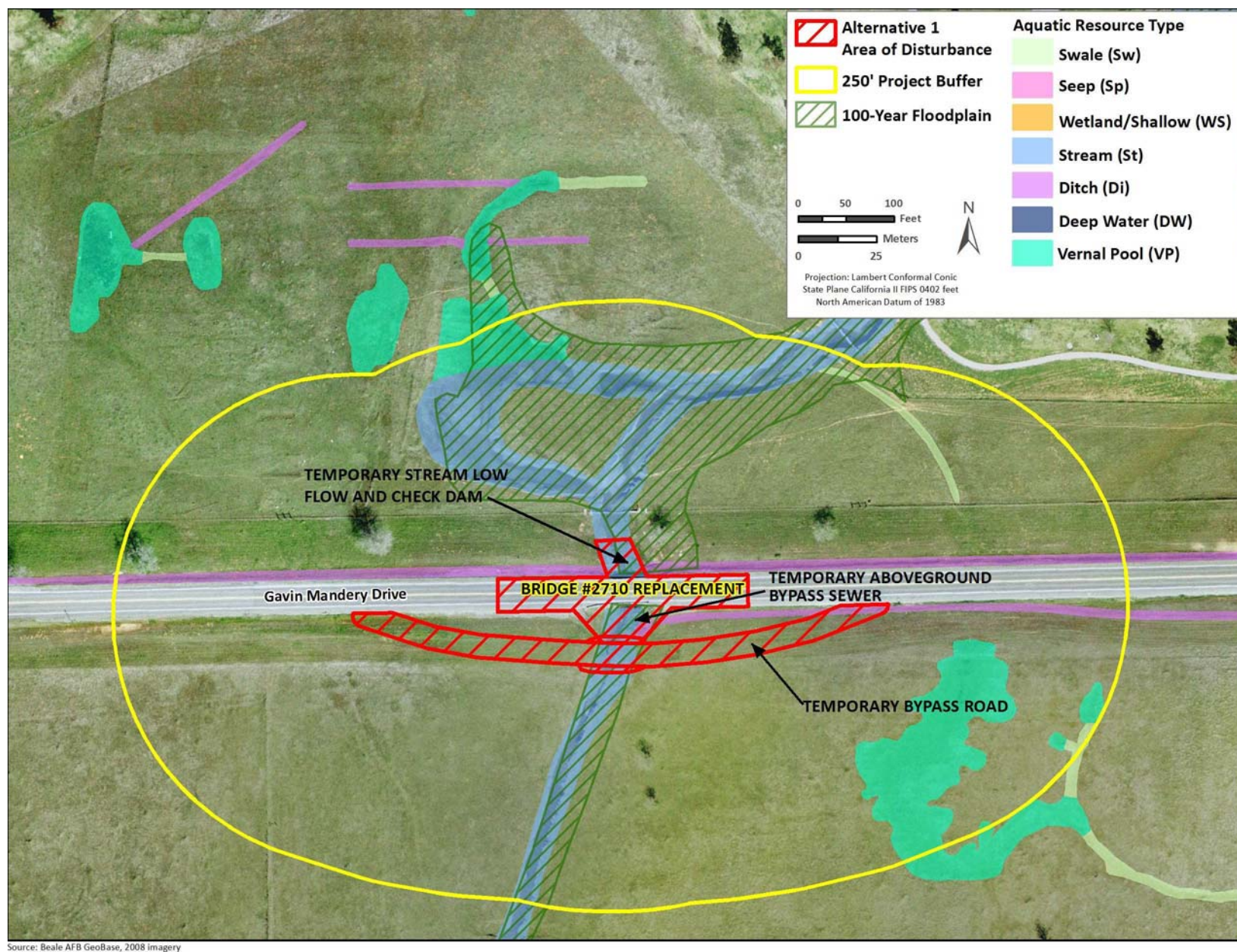


Figure 3-8. Water Features and Floodplains: Alternative 1 Replace Bridge 2710

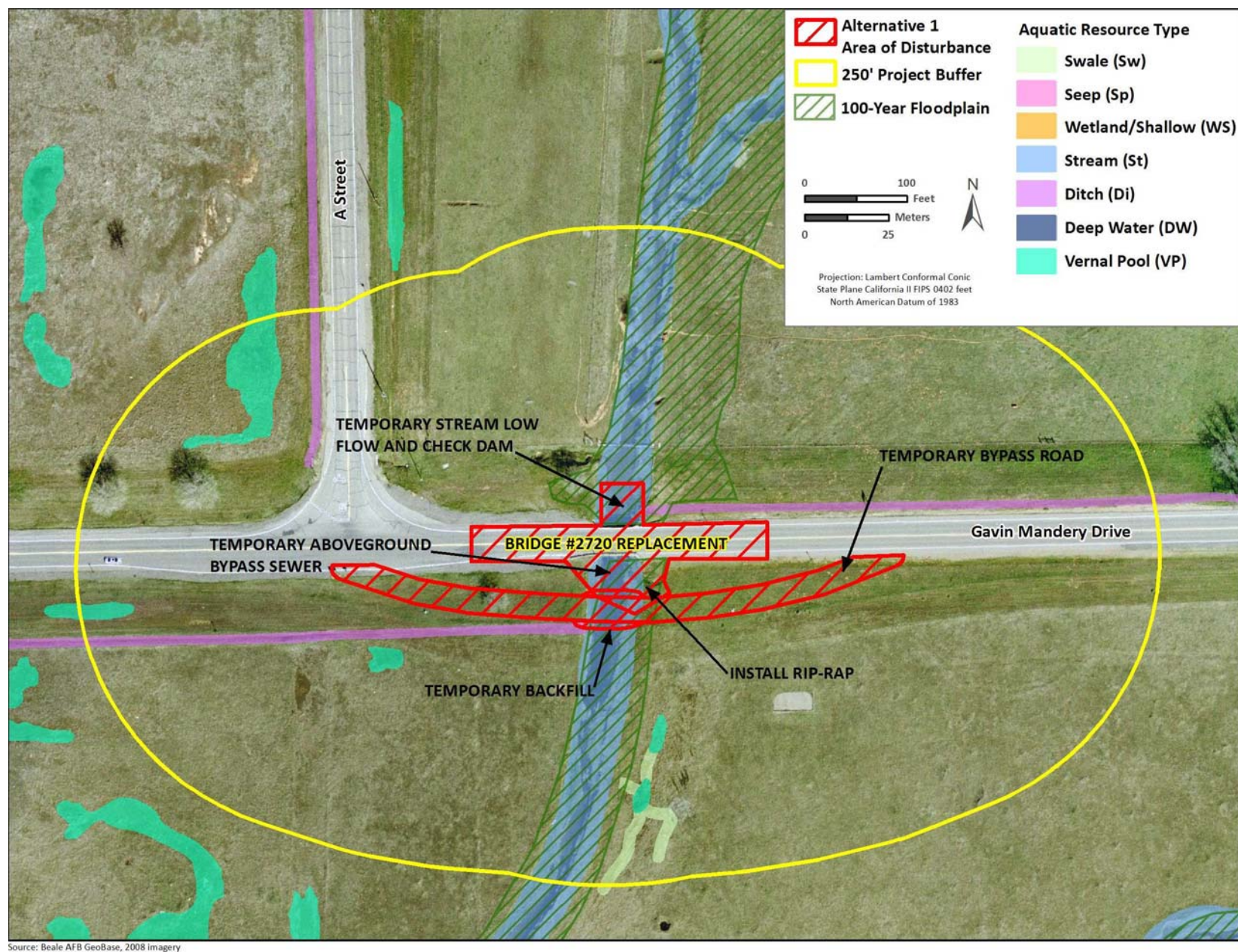


Figure 3-9. Water Features and Floodplains: Alternative 1 Replace Bridge 2720

Wetlands. No direct impacts on wetlands from implementation of Alternative 1 would be anticipated. Short-term, indirect, minor, adverse impacts would be expected. There are approximately 0.24 acres of vernal pools within the 250-foot buffer area for the temporary bypass road and the replacement activities for Bridge 2710 and 2720 (see **Figure 3-8** and **3-9**). Construction of the temporary bypass road would require fill to be installed in the creek bed. However, upon completion of construction activities, the temporary bypass roads and temporary bridge structures would be removed and the areas would be restored to preexisting conditions. Therefore, no significant impacts would be expected. Implementation of general and species-specific environmental protection measures would minimize impacts as a result of Alternative 1 (see **Section 3.7.4** and **Table 2-10**).

Adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**) would avoid or minimize adverse effects. In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented, as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager.

Summary. Construction and operational impacts associated with Alternative 1 would be similar to, but slightly greater than those described under the Proposed Action (see **Section 3.6.3.2.1**). Additional short-term, minor, direct and indirect, adverse impacts would be expected from construction of the temporary bypass roads. Short-term, direct, negligible, adverse impacts would be expected on approximately 0.24 acres of waters of the United States during construction activities associated with the temporary bypass road and bridge replacement activities. Construction of the temporary bypass roads would require fill to be installed in the creek bed. However, upon completion of construction activities, the temporary bypass roads and temporary bridge structures would be removed and the areas would be restored to preexisting conditions. Potential adverse impacts would be minimized with adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**). All applicable CWA 404 permits and Section 401 water quality certifications and would be addressed/acquired prior to commencement of construction activities. Therefore, no significant, adverse impacts would be expected from implementation of Alternative 1.

3.6.3.2.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive. These bridges would continue to deteriorate and require continued reduction of maximum loads and an increase in the frequency of required inspections. Eventually, the bridges could collapse under continued use, leading to adverse impacts on water resources.

3.6.3.3 *Implement the Base Demolition Plan*

3.6.3.3.1 *Proposed Action*

Short-term, direct and indirect, minor, adverse impacts on water resources would be expected from implementation of the Base Demolition Plan. During demolition activities, runoff could result in a slight increase in turbidity. Potential direct and indirect impacts from an increase in turbidity would be minimized with implementation of BMPs (e.g., wetting of soils, silt fencing, and detention basins) and adherence to erosion and storm water management practices to contain soil and runoff on the project area (see **Section 3.6.4** and **Table 2-10**). In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. Upon

completion of demolition activities, long-term, direct, beneficial impacts would be expected from the decrease in impermeable surfaces and increase in permeable surface area.

Building 355. No direct impacts on groundwater, water quality, or floodplains would be expected from the demolition of Building 355. There is one ditch within the project area (0.02 acres) (see **Figure 3-10**). No construction activities or equipment would be installed in the ditch. There are approximately 0.47 acres of vernal pools within the 250-foot buffer area (Lichvar et al. 2006) (see **Figure 3-10**). No construction activities or equipment would be installed in the vernal pools. Furthermore, these vernal pools would be separated by the demolition activities by open ditches or roads, further reducing any potential for impacts.

Building 1028. No indirect or direct impacts on groundwater, water quality, floodplains, or wetlands would be expected from the demolition of Building 1028. There are no water features within the project area and no vernal pools within the the 250-foot buffer area.

Building 2459. No indirect or direct impacts on groundwater, water quality, floodplains, or wetlands would be expected from the demolition of Building 2459. There are no water features within the project area and no vernal pools within the 250 foot buffer area.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. No direct impacts on groundwater, water quality, floodplains, or wetlands would be expected from the demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, or 5116. For Buildings 5109, 5110, and 5111, there is one ditch within the project area (0.01 acre). No construction activities or equipment would be installed in the ditch.

Summary. Construction and operational activities associated with the Base Demolition Plan would not result in significant impacts on water resources. The Proposed Action would not be expected to directly impact groundwater, water quality, floodplains, or wetlands. Direct impacts on ditches within the project areas and vernal pools within the 250-foot buffer area would be expected; however, potential adverse impacts would be avoided or minimized with adherence to BMPs and environmental protection measures (see **Section 3.6.4** and **Table 2-10**). In addition, erosion-control BMPs in accordance with the Beale AFB SWPPP (Beale AFB 2011d) would be implemented, as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. No construction activities or equipment would be installed in any of the ditches or vernal pools. Upon completion of demolition activities, long-term, direct, beneficial impacts on surface water would be expected from the reduction of impermeable surfaces and increase in permeable surface area.

3.6.3.3.2 *Alternatives*

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.6.3.3.3 *No Action Alternative*

Under the No Action Alternative, the Base Demolition Plan would not be implemented. No impacts on water resources would be expected.

3.6.4 Environmental Protection Measures

The BMPs and environmental protection measures presented as follows are based largely on the SAMP PBO for Beale AFB (USFWS 2012b).

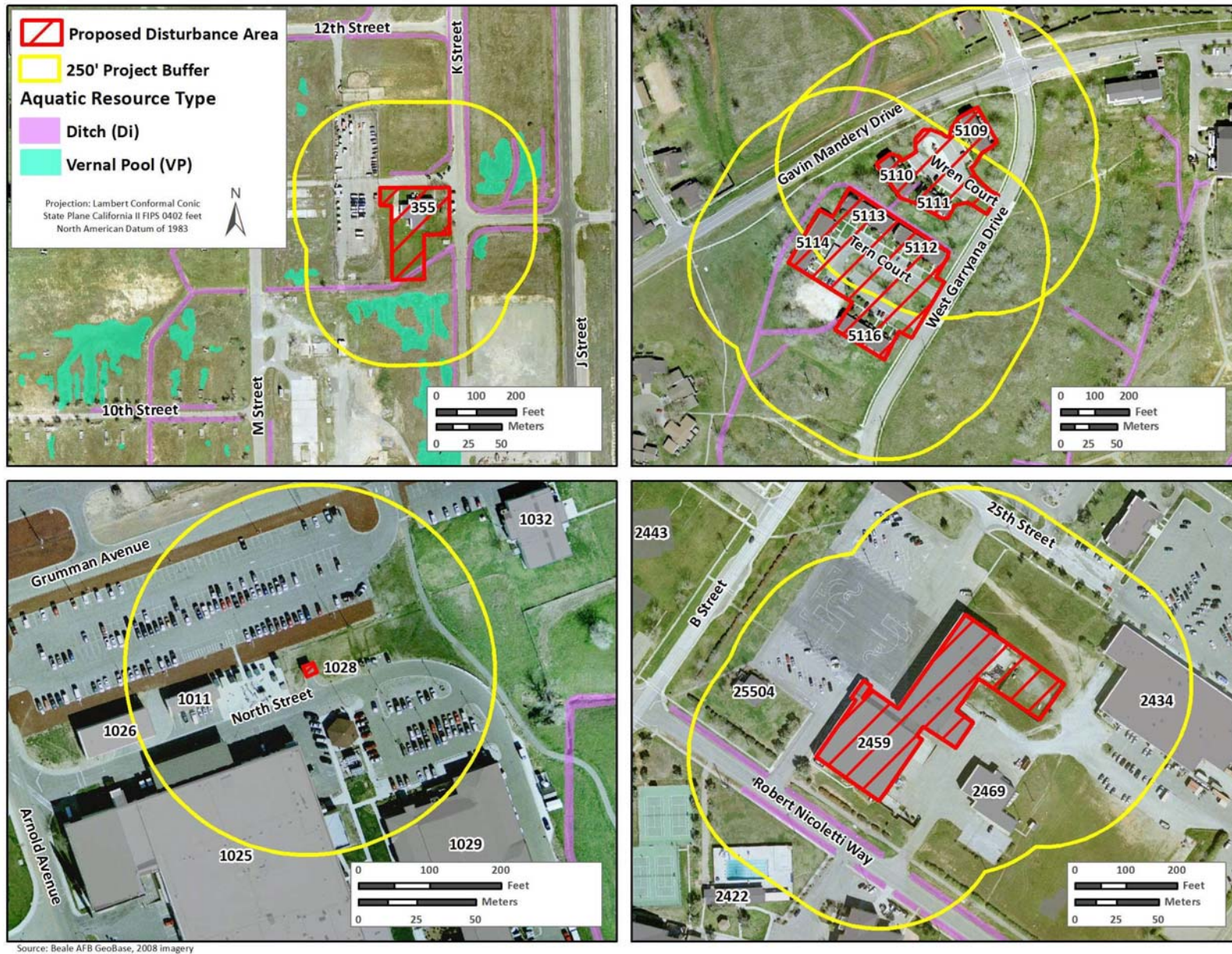


Figure 3-10. Water Features and Floodplains: Base Demolition Plan

Measure 1: Best Management Practices. The contractor would adhere to BMPs and applicable codes and ordinances to reduce storm water runoff-related impacts on wetlands or vernal pools that are located within 250 feet, or have a hydrologic connection to the project site. Construction vehicles and equipment would be prohibited off-road, outside designated work areas. In addition, all construction vehicles would be fueled and serviced in designated service areas and vehicles would observe the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads. Erosion-control BMPs in accordance with the Beale AFB SWPPP would be implemented as needed, including installation of silt fencing and straw wattles, grading during the dry season, compaction of upland spoils, and seeding and mulching areas of exposed soil as determined necessary by the Beale AFB Storm Water Manager. All soil excavated in jurisdictional waters of the United States would be removed and disposed of by the contractor outside the project area. Coordination with the Beale AFB Environmental Office would be required prior to disposing of this excavated soil.

Measure 2: Exclusionary Period. No work would be conducted within 250 feet of vernal pools between 1 November and 1 May, unless specifically approved by the Beale AFB environmental office.

Measure 3: Erosion Control. All wetlands/drainages/vernal pools would have erosion-control measures (e.g., straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer would be designated with fencing to ensure no equipment or construction workers access those protected areas.

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Special status biological resources include listed (threatened or endangered), proposed, and candidate species under the Endangered Species Act (ESA) of 1973 as designated by the U.S. Fish and Wildlife Service (USFWS), state-listed threatened or endangered species, and migratory birds including those that are covered under the Bald and Golden Eagle Protection Act (BGEPA).

Threatened and Endangered Species. The ESA established a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charged Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a threatened and endangered species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the USFWS maintains the endangered species list. The USFWS has authority regarding the presence of threatened and endangered species pursuant to the requirements of Section 7 of the ESA (16 U.S.C. 1536). States might also have their own laws for protecting plants and animals they consider threatened or endangered. This section describes the affected environment and environmental consequences associated with threatened and endangered species potentially affected by implementation of the four proposed projects and their alternatives.

Federal endangered species are those identified by the USFWS as being in danger of extinction throughout all or a significant portion of their range. Federal threatened species are those identified by USFWS as likely to become endangered in the near future. State-listed species are those identified as threatened or endangered by the California Department of Fish and Wildlife.

Migratory Birds. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703–712) as amended, and EO 13186, *Conservation of Migratory Birds*. The MBTA protects migratory birds and implements the United States’ commitment to international conventions for the protection of migratory birds. MBTA is the domestic law that governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA’s regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overutilization. The DOD is subject to the provisions of the MBTA, statutory and regulatory requirements associated with the Migratory Bird Permits, Take of Migratory Birds by the Armed Forces (DOD/MBTA rule; 72 FR 8931), and the Memorandum of Understanding between DOD and the USFWS to Promote the Conservation of Migratory Birds (71 FR 51580) in protecting migratory birds.

EO 13186 (10 January 2001) created strategies for the conservation of migratory birds. The 2003 National Defense Authorization Act authorized the USFWS to develop regulations to address situations where DOD would be exempt during military readiness training activities from rules prohibiting the incidental taking of migratory birds. If the DOD determines that a proposed or ongoing military readiness activity could result in a significant adverse effect on a population of a migratory bird species, then coordination must occur with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate such potential adverse effects (72 FR 8931).

Bald and Golden Eagle Protection Act. BGEPA prohibits anyone without a permit to “take” bald or golden eagles. “Take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb” is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior” (USFWS 2009).

3.7.2 Existing Conditions

3.7.2.1 Vegetation

Grassland. The most common type of vegetation at Beale AFB is nonnative annual grassland, which covers approximately 18,835 acres of the installation (Beale AFB 2011a). Nonnative grassland is an upland vegetation community dominated by nonnative grasses and a variety of native and nonnative forbs. This community provides nesting and breeding habitat for a variety of grassland birds, and foraging habitat for many bird species that breed in other habitats. Nonnative grasslands also provide foraging habitat and cover for several species of mammals and lizards common on the installation. Typical grassland communities at Beale AFB include mostly naturalized annual grass species including ripgut brome (*Bromus diandrus*), Italian rye grass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusa head (*Taeniatherum caput-medusae*), fescue (*Vulpia* sp.), and barley (*Hordeum* sp.).

Oak Woodland. Oak woodlands occur in small groves spread throughout the dominant grassland community and in the foothills around Beale AFB’s family housing area. The community consists of at least 50 percent canopy cover of one or more species of oak (*Quercus* sp), typically with an annual grass understory.

Riparian. Riparian vegetation is found along rivers, streams, permanent and intermittent creeks, and lakes and forms the transition between aquatic and upland ecosystems. The highest quality riparian vegetation on Beale AFB occurs along Dry Creek and Best Slough. Species commonly associated with riparian vegetation at Beale AFB include Fremont cottonwood (*Populus fremontii*), willow species

(*Salix gooddingii*, *S. exigua*, *S. laevigata*, and *S. lasiolepis*), valley oak (*Quercus lobata*), Oregon ash (*Fraxinus latifolia*), and white alder (*Alnus rhombifolia*) (Beale AFB 2011a).

Wetland Resources. Wetlands are special aquatic sites that have a greater resource value than most jurisdictional waters and require a different level of avoidance and mitigation. Seasonal wetlands at Beale AFB provide important foraging and breeding habitat and cover for wetland wildlife and invertebrates. These ephemeral wetlands also support highly specialized plant taxa adapted to growing conditions associated with seasonal and year-to-year variation in water availability. Vernal pools are seasonal wetlands that potentially support many endangered species. These are shallow ephemeral water bodies found in depressions among grasslands that include vernal pools, vernal swale wetlands, and depressional seasonal wetlands. Given their relative isolation in upland vegetation communities, they provide unique habitats that support many special-status species.

3.7.2.1 Wildlife

A variety of wildlife inhabits the grasslands, woodlands, riparian habitats, and wetlands of Beale AFB. Grasslands provide nesting and foraging habitat for a variety of bird species, including the rough-legged hawk (*Buteo lagopus*), western king bird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), savannah sparrow (*Passerculus sandwichensis*), horned lark (*Eremophila alpestris*), and Brewer's blackbird (*Euphagus cyanocephalus*). Grasslands are also an important habitat for common rodents and large and small predators, including the gray fox (*Urocyon cinereoargenteus*) and coyote (*Canis latrans*). Reptiles also inhabit the grasslands, including the gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), western yellow-bellied racer (*Coluber constrictor*), common king snake (*Lampropeltis getula*), alligator lizard (*Elgaria coerulea*), and western fence lizard (*Sceloporus occidentalis*).

Oak woodlands provide nesting and foraging habitat for additional species including acorn woodpecker (*Melanerpes formicivorus*), wild turkey (*Meleagris gallopavo*), California quail (*Callipepla californica*), western scrub jay (*Aphelocoma californica*), mule deer (*Odocoileus hemionus*), and California ground squirrel (*Spermophilus beecheyi*). Oak trees specifically offer nesting sites for cavity nesting species, including the acorn woodpecker, Nuttall's woodpecker (*Picoides nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), western blue-bird (*Sialia mexicana*), tree swallow (*Tachycineta bicolor*), oak titmouse (*Baeolophus inornatus*), and white-breasted nuthatch (*Sitta carolinensis*).

Riparian habitats serve as foraging and roosting areas for several bat species found on Beale AFB, including the hoary bat (*Lasiurus cinereus*), western red bats (*Lasiurus blossevilli*), and several *Myotis* species. In addition to species mentioned previously, riparian habitats are also habitat for amphibians on Beale AFB, including the Pacific tree frog.

Vernal pools are unique habitats within the grasslands of Beale AFB; fauna during the wet season support an increased diversity of bird species including several species of ducks and wading birds. Pacific tree frogs (*Hyla regilla*) and western toads (*Anaxyrus boreas*) become active during the wet phase of the vernal pool along with several species of vernal pool branchiopods. Many predators including garter snakes (*Thamnophis* sp.) and raccoons (*Procyon lotor*) are drawn to these areas during this time of prey abundance (Beale AFB 2011a).

3.7.2.1.1 Special Status Species

Species listed as threatened or endangered under the ESA (Federal-listed species) and state-listed species that have potential to be affected by implementation of the proposed projects and their alternatives are discussed in this section. This section presents those Federal- and state-listed species that have the potential to inhabit Beale AFB. **Table 3-12** provides a listing of the federally listed and state-listed

threatened and endangered species that are known or have the potential to occur within areas of the Proposed Action.

3.7.2.1.2 Federal Threatened or Endangered Species

There are six federally listed plant species with the potential to occur within or adjacent to the areas of the proposed projects and alternatives, hairy orcutt grass (*Orcuttia pilosa*), slender orcutt grass (*Orcuttia tenuis*), Sacramento orcutt grass (*Orcuttia viscida*), Hartweg's golden sunburst (*Pseudobahia bahiifolia*), Layne's butterweed (*Senecio layneae*), and Greene's tuctoria (*Tuctoria greenei*) (see **Table 3-12**). In November 2007, the USFWS concurred with Beale AFB that Hartweg's golden sunburst and Layne's butterweed are not expected to occur on Beale AFB. There is a California Natural Diversity Database recorded historic occurrence of Hartweg's golden sunburst within a 10-mile radius of Beale AFB.

Table 3-12. Federal- and State-listed Species with the Potential to Occur in the Areas of the Proposed Projects and Alternatives

Common Name	Scientific Name	Federal Status	State Status	Occurrence at Beale AFB
Flora				
Boggs lake hedge-hyssop	<i>Gratiola heterosephala</i>	SSC	Endangered	Unknown
Hairy orcutt grass	<i>Orcuttia pilosa</i>	Endangered	Endangered	Unknown
Slender orcutt grass	<i>Orcuttia tenuis</i>	Threatened	Endangered	Unknown
Sacramento orcutt grass	<i>Orcuttia viscida</i>	Endangered	Endangered	Unknown
Hartweg's golden sunburst	<i>Pseudobahia bahiifolia</i>	Endangered	Endangered	Unknown
Layne's butterweed	<i>Senecio layneae</i>	Threatened	Rare	Unknown
Greene's tuctoria	<i>Tuctoria greenei</i>	Endangered	Rare	Unknown
Fauna				
Invertebrates				
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	-	Yes
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered	-	Not detected
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	-	Yes
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	-	Yes
Fish				
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	-	SSC	Potentially; not confirmed
Fall-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	-	SSC	Yes
Amphibians and Reptiles				
Northwestern pond turtle	<i>Actinemys marmorata marmorata</i>	-	SSC	Yes

Common Name	Scientific Name	Federal Status	State Status	Occurrence at Beale AFB
Foothill yellow-legged frog	<i>Rana boylei</i>	-	SSC	Not currently
California red-legged frog	<i>Rana draytonii</i>	Threatened	SSC	Not currently
Western spadefoot	<i>Spea hammondi</i>	-	SSC	Not currently
Giant garter snake	<i>Thamnophis gigas</i>	Threatened	Threatened	Not currently
Birds				
Tricolored blackbird	<i>Agelaius tricolor</i>	-	SSC	Yes
Birds (continued)				
Western burrowing owl	<i>Athene cunicularia hypugea</i>	BCC	SSC	Yes
Golden eagle	<i>Aquila chrysaetos</i>	BGEPA		Yes
Swainson's hawk	<i>Buteo swainsoni</i>	-	Threatened	Yes
Northern harrier	<i>Circus cyaneus</i>	-	SSC	Yes
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	Endangered	Not currently
Yellow warbler	<i>Dendroica petechina</i>	-	SSC	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted*/BGEPA	Endangered	Yes
Yellow-breasted chat	<i>Icteria virens</i>	-	SSC	Yes
Loggerhead shrike	<i>Lanius ludovicianus</i>	BCC	SSC	Yes
Purple martin	<i>Progne subis</i>	-	SSC	Yes
Bank swallow	<i>Riparia</i>	-	Threatened	Yes
Mammals				
Pallid bat	<i>Antrozous pallidus</i>	-	SSC	Yes
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	-	SSC	Not currently, highly likely
Western red bat	<i>Lasiurus blossevillei</i>	-	SSC	Yes
Long-legged myotis	<i>Myotis volans</i>	-	SSC	Yes

Sources: CNDDDB 2012, USFWS 2012a, Beale AFB 2011a

Note: * The bald eagle was federally delisted in 2007 and is no longer afforded protection under the ESA.

Key: SSC = Species of Special Concern, BCC = Bird of Conservation Concern, BGEPA = Bald and Golden Protection Act.

However, this plant was last observed in 1848. Beale AFB does not contain suitable habitat to support Layne's butterweed. In addition, there are no California Natural Diversity Database recorded occurrences within a 10-mile radius of Beale AFB (Beale AFB 2009a). The four other federally listed plant species have been documented on Beale AFB.

There are six federally listed, and one candidate faunal species with potential to occur within or adjacent to the areas of the proposed projects and alternatives (see **Table 3-12**). The federally listed faunal species

include the vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*Branchinecta conservatio*), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool tadpole shrimp (*Lepidurus packardii*), California red-legged frog (*Rana draytonii*), and giant garter snake (*Thamnophis gigas*). The western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is listed as a candidate species by the USFWS. This species is not known to occur on Beale AFB; however, suitable habitat does occur in the riparian areas on Beale AFB.

Vernal pool species. Vernal pool fairy shrimp, conservancy fairy shrimp, and the vernal pool tadpole shrimp occur in vernal pools and other ephemeral wetlands that form in grassy swales. Much of the vernal pool habitat on the Beale AFB properties provides suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp (USFWS 2012b). Vernal pool fairy shrimp and vernal pool tadpole shrimp have been documented in numerous locations on Beale AFB. Vernal pool fairy shrimp and vernal pool tadpole shrimp documented occurrences, and presumably most of the suitable habitat, is concentrated within the northwestern portion of Beale AFB that is designated as a Special Area Management Plan (SAMP) High Integrity/Conservation Area. This area is also part of the vernal pool fairy shrimp core recovery area. A number of other occurrences are scattered throughout the center of Beale AFB and in the very northern portion of Beale AFB (USFWS 2012b). The closest documented occurrence of conservancy fairy shrimp is approximately 12 miles south of Beale AFB. The conservancy fairy shrimp has not been documented on Beale AFB.

3.7.2.1.3 Species Protected By Other Federal Laws, MBTA, BGEPA, or State-Listed

Plants. One state-listed endangered plant species, Boggs lake hedge-hyssop (*Gratiola heterosephala*), has the potential to occur on Beale AFB.

Fish. One state-listed species of special concern fish species, Fall-run Chinook salmon (*Oncorhynchus mykiss*), is known to occur and the Central Valley steelhead (*Oncorhynchus tshawytscha*) has the potential to occur on Beale AFB.

Amphibians and Reptiles. Two state-listed species of special concern amphibian species, foothill yellow-legged frog (*Rana boylei*) and the western spadefoot (*Spea hammondi*), have the potential to occur on Beale AFB. In addition, one state-listed reptile species, northwestern pond turtle (*Actinemys marmorata marmorata*) is known to occur on Beale AFB.

Birds. There are several bird species known to occur and have the potential to occur in and adjacent to the proposed projects and their alternatives that are subject to regulation under the MBTA. In addition, several other special-status species including California state-listed threatened and endangered species, species of special concern, and species covered under BGEPA that have been identified in the Integrated Natural Resources Management Plan (INRMP) as having the potential to or are known to occur on Beale AFB. Many of these species have the potential to fly over or forage in the vicinity of the proposed project sites including tricolored blackbird (*Agelaius tricolor*), western burrowing owl (*Athene cunicularia hypugea*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), Northern harrier (*Circus cyaneus*), yellow warbler (*Dendroica petechina*), bald eagle (*Haliaeetus leucocephalus*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), purple martin (*Progne subis*), and bank swallow (*Riparia riparia*).

Bats. Several state-listed species of special concern bats are known to occur on Beale AFB and sometimes use buildings as roosts. Species that are known to occur on Beale AFB and have the potential to occur within the proposed project sites include pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillei*), and long-legged myotis (*Myotis*

Volans). Developed areas generally provide no suitable habitat for special status species; however, buildings could provide habitat for special status bats (Beale AFB 2011a).

3.7.3 Environmental Consequences

Ground disturbance and noise associated with construction can directly or indirectly cause adverse effects on biological resources. Direct effects from ground disturbance are evaluated by identifying the types and locations of potential ground-disturbing activities in relation to important biological resources. Habitat removal and damage or degradation of habitats might be adverse effects associated with ground-disturbing activities.

Effects on biological resources would be significant if species or habitats of high concern are adversely affected over relatively large areas. Effects would also be considered significant if disturbances cause reductions in population size or distribution of a species of high concern.

The significance of effects on biological resources is based on the following:

- The importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource
- The proportion of the resource that would be affected relative to its occurrence in the region
- The sensitivity of the resource to proposed activities
- The duration of ecological ramifications.

Consultation with the USFWS is required under Section 7 of the ESA regarding actions that might affect federally listed endangered or threatened species and must ensure that these actions do not jeopardize the continued existence of these species, or result in the destruction or adverse modification of critical habitat designated for these species. While not required for Federal agencies, coordination with California Department of Fish and Wildlife typically occurs regarding species listed under the California ESA.

A Programmatic Biological Assessment (PBA) was developed by Beale AFB (Beale AFB 2009a) to cover routine construction and maintenance activities conducted on Beale AFB that might affect species regulated by the USFWS under the ESA. A SAMP is currently under review by the USACE to assess impacts on aquatic resources as a result of the same routine activities. The SAMP identifies areas proposed for new development as part of the Beale AFB development areas and provides mitigation for impacts on wetlands (including vernal pools, streams, ponds and other wetland types, and waters of the United States) and specific special-status species, which would be affected by development. The SAMP also provides comprehensive supporting evidence for subsequent USAF consultation with the USFWS under Section 7 of the Federal ESA for any actions that could result in incidental take. The USFWS issued a Programmatic Biological Opinion (PBO) for the PBA (USFWS 2012b) on 2 October 2012. Potential impacts on special status species were evaluated under the framework of the SAMP and PBA/PBO and avoidance and minimization measures were adopted based on the finding of the PBO.

Overall Construction Impacts. Short- and long-term, minor, adverse impacts on vegetation and wildlife would be expected from implementation of the Proposed Action. Construction of the TLF project would result in direct impacts on 0.007 acres of vernal pool habitat. In consultation with the USFWS, it was determined that construction of the TLF may affect and is likely to adversely affect vernal pool crustaceans found within the 0.007 acres of vernal pool habitat; therefore, Beale AFB would be required to provide 0.021 acres of habitat preservation in compliance with established USFWS ratios and in accordance with the INRMP and SAMP. Vernal pool habitat is also found within the 250 foot buffer of the project areas for the TLF, Bridges 2710 and 2720, and Building 355. In consultation with the USFWS, it was determined that these projects are not likely to adversely affect vernal pool crustaceans found within the habitat; therefore, no compensatory mitigation is required.

Overall Operational Impacts. No operational impacts would be expected from use of the TLF or bridges, and no operational impacts would be expected in the areas associated with building demolition.

3.7.3.1 Construct Temporary Lodging Facility

Anticipated impacts from the Proposed Action are summarized in **Table 3-13**. Impacts on special status species include impacts on branchiopod habitat, such as vernal pools. Vernal pool tadpole shrimp and vernal pool fairy shrimp are assumed to be present in vernal pools.

Table 3-13. Summary of Impacts on Biological Resources for the Construction of a Temporary Lodging Facility

Project	Habitat Type	Acreage within Project Footprint	Acreage within 250 Foot Buffer	Impacts	
Temporary Lodging Facility	Grassland	6.72	NA	Vegetation	Direct impacts on 6.72 acres of grassland.
	Developed	0.57	NA	Wildlife	Short-term, indirect, minor adverse impacts on wildlife.
	Vernal pool	0.007	0.16		
	Other wetland	0.016	0.53		
	Swale	0.025	0.06	Special status species	Direct impacts on 0.007 acres of vernal pool habitat. 0.16 acres of vernal pool habitat that may be affected, but not likely to be adversely affected.
	Disturbed ground	18.38	NA		

Note: NA=Not Applicable

3.7.3.1.1 Proposed Action

Vegetation. Long-term, direct, minor, adverse impacts on vegetation would be expected; however, these impacts would not be considered significant. Construction of the TLF would result in the permanent loss of approximately 6.72 acres of grassland. This is a minor loss of this habitat type and represents a very small portion of comparable grassland in surrounding areas on Beale AFB. **Figure 3-11** shows the biological resources associated with the construction of the TLF.

Wildlife. Short-term, indirect, minor, adverse impacts on wildlife would be expected; however, these impacts would not be considered significant. Because of the disturbed nature of the project site, there is little wildlife currently inhabiting the site. Noise created during construction activities would result in short-term, indirect, adverse impacts on wildlife. These impacts would include subtle widespread effects from the overall elevation of ambient noise levels, which would result in habitat avoidance. Wildlife species inhabiting the project area might be displaced during construction, but would be expected to move temporarily to adjacent less-utilized habitat and then return to the area.

Special Status Species. There are .007 acres found to have suitable vernal pool crustacean habitat and directly impacted by the proposed TLF project. In accordance with the USFWS consultation completed in December 2013 (**Appendix D**), a total of 0.021 acres of vernal pool habitat preservation would be

required as compensation. An additional 0.26 acres of wetland/vernal pools are located within 250 feet of the project site but were found not likely to adversely affect vernal pool crustaceans.

Summary. Construction activities associated with construction of the TLF would not result in significant impacts on biological resources. There is .007 acres found to have suitable vernal pool crustacean habitat and directly impacted by the proposed TLF project. In accordance with the USFWS consultation completed in December 2013, a total of 0.021 acres of vernal pool habitat preservation would be required as compensation. An additional 0.26 acres of wetland/vernal pools are located within 250 feet of the project site but were found not likely to adversely affect vernal pool crustaceans. The Environmental Office has worked with the project proponent to identify a series of avoidance, minimization, and compensation measures to be implemented as part of the Proposed Action. No operational impacts would be expected from use of the TLF.

3.7.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.7.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct a TLF and there would be no impacts on biological resources at Beale AFB.

3.7.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.7.3.2.1 *Proposed Action*

Anticipated impacts of the Proposed Action are summarized in **Table 3-14**. Impacts on special status species include impacts on branchiopod habitat, such as vernal pools. Vernal pool tadpole shrimp and vernal pool fairy shrimp are assumed to be present in vernal pools.

Vegetation. Long-term, direct, minor, adverse impacts on grassland vegetation would occur under the Proposed Action. Implementation of the proposed project would result in a permanent loss of approximately 0.03 acres of grassland habitat. This is a negligible loss of this habitat type and represents a very small portion of comparable grassland in surrounding areas on Beale AFB. **Figures 3-12 and 3-13** show the biological resources associated with the replacement of Bridges 2710 and 2720, respectively.

Wildlife. Short-term, direct and indirect, minor, adverse impacts on wildlife would occur under the Proposed Action. Because of the disturbed nature of the site, there is little wildlife currently inhabiting the site. Noise created during construction activities could result in indirect, adverse impacts on wildlife. These impacts would include subtle widespread effects from the overall elevation of ambient noise levels, which could result in habitat avoidance. Wildlife species inhabiting these sites might be displaced during construction, but would be expected to move temporarily to adjacent less-utilized habitat and then potentially return to the area. Overall, impacts on wildlife would be less than significant.

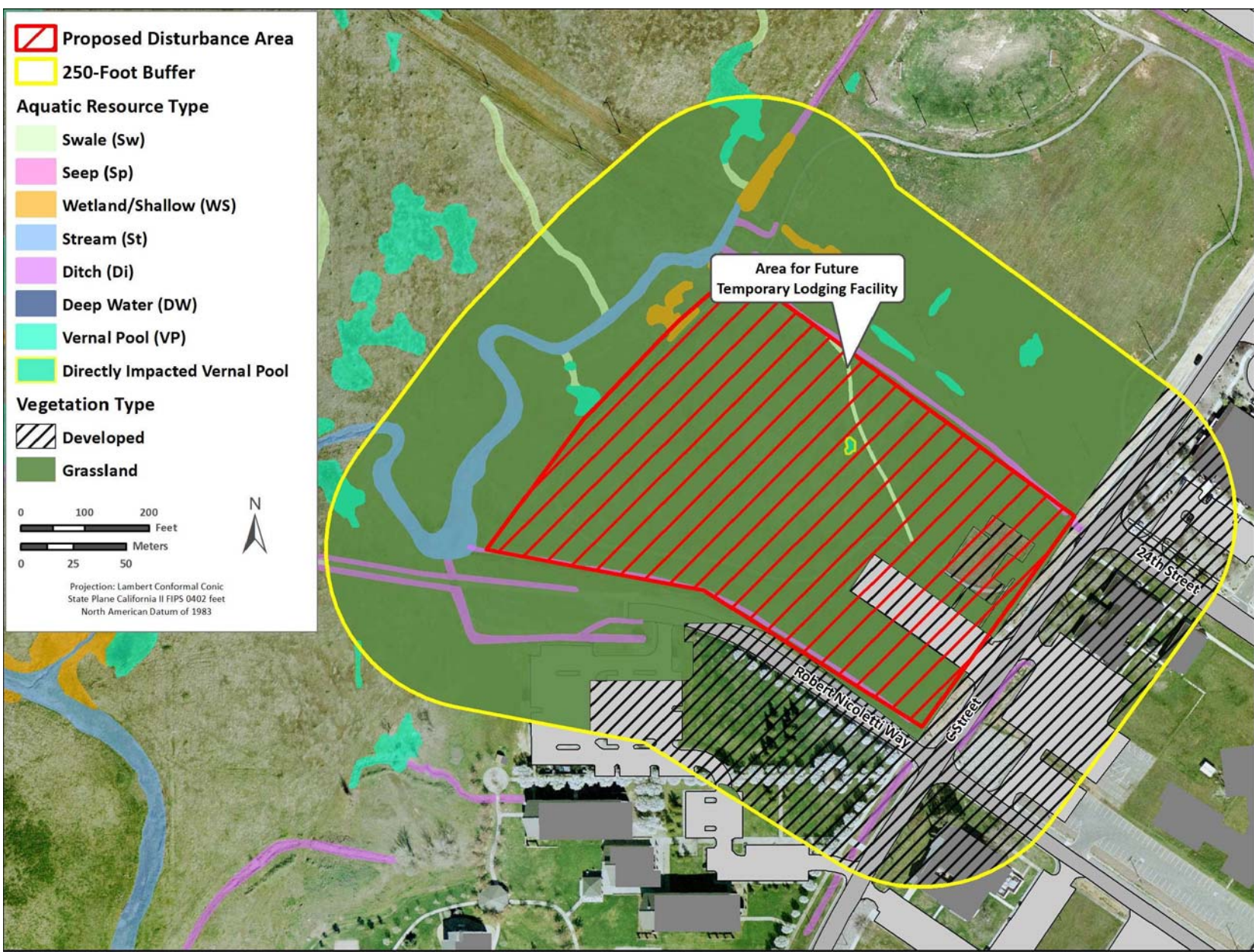


Figure 3-11. Biological Resources: Construction of the TLF

**Table 3-14. Summary of Impacts on Biological Resources
for Replacement of Bridges 2710 and 2720 on Gavin Mandery Drive**

Project	Habitat Type	Acreage within Project Footprint	Acreage within 250 Foot Buffer	Project Impacts		
Replacement: Bridges 2710 and 2720	Grassland	0.03	NA	Replacement: Bridges 2710 and 2720	Vegetation	Direct impacts on 0.03 acres of grassland.
	Developed	0.03	NA		Wildlife	Short-term, direct and indirect, minor, adverse impacts on wildlife.
	Vernal pool	-	0.36			
	Other wetland (stream)	-	1.6			
	Disturbed ground	-	N/A		Special status species	0.36 acres of vernal pool crustacean habitat that may be affected, but not likely to be adversely affected.

Note: NA = Not Applicable

Special Status Species. No direct, adverse impacts on vernal pool habitat would be expected under the Proposed Action. There is 0.36 acres of potential vernal pool crustacean habitat within the vicinity of the bridges 2710 and 2720 project areas (**Figure 3-2** and **3-13**). In accordance with the USFWS consultation completed on 29 January 14, there are no impacts to vernal pool crustaceans from implementation of the bridge 2710 and 2720 replacement projects. Implementation of general and species-specific environmental protection measures would minimize impacts as a result of the Proposed Action (see **Section 3.7.4**, **Table 2-10**, and **Appendix D**).

The proposed project could have short-term, direct, minor, adverse impacts on migratory birds by disturbing nesting sites during ground-disturbing activities. To avoid or minimize impacts on migratory birds, pre-construction surveys would be conducted and appropriate protective measures would be adopted if nesting birds were present (see **Section 3.7.4** and **Table 2-10**).

Summary. Construction and operational activities associated with the replacement of Bridges 2710 and 2720 on Gavin Mandery Drive would not have a significant impact on biological resources. However, implementation of these projects would result in the loss of 0.03 acres of grassland habitat. There is 0.36 acres of potential vernal pool crustacean habitat within the vicinity of the bridges 2710 and 2720 project areas. In accordance with the USFWS consultation completed on 29 January 2014, there are no impacts to vernal pool crustaceans from implementation of the bridge 2710 and 2720 replacement projects. The Environmental Office has worked with the project proponent to identify a series of avoidance, minimization, and compensation measures to be implemented as part of the Proposed Action (see **Section 3.7.4**). This assessment of the potential impacts of the proposed project is based on the implementation of these measures (see **Section 3.7.4**).

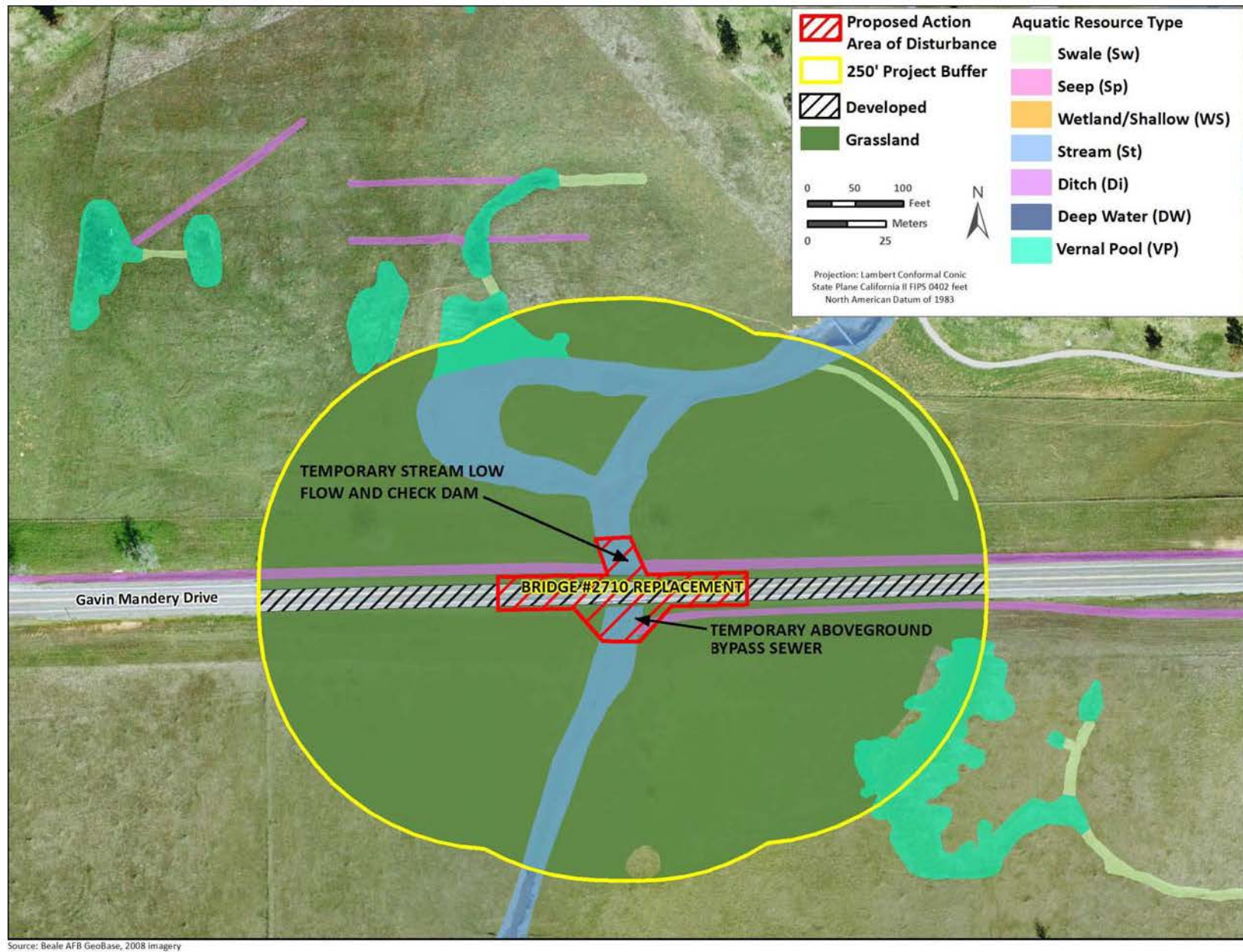


Figure 3-12. Biological Resources: Proposed Action Replace Bridge 2710

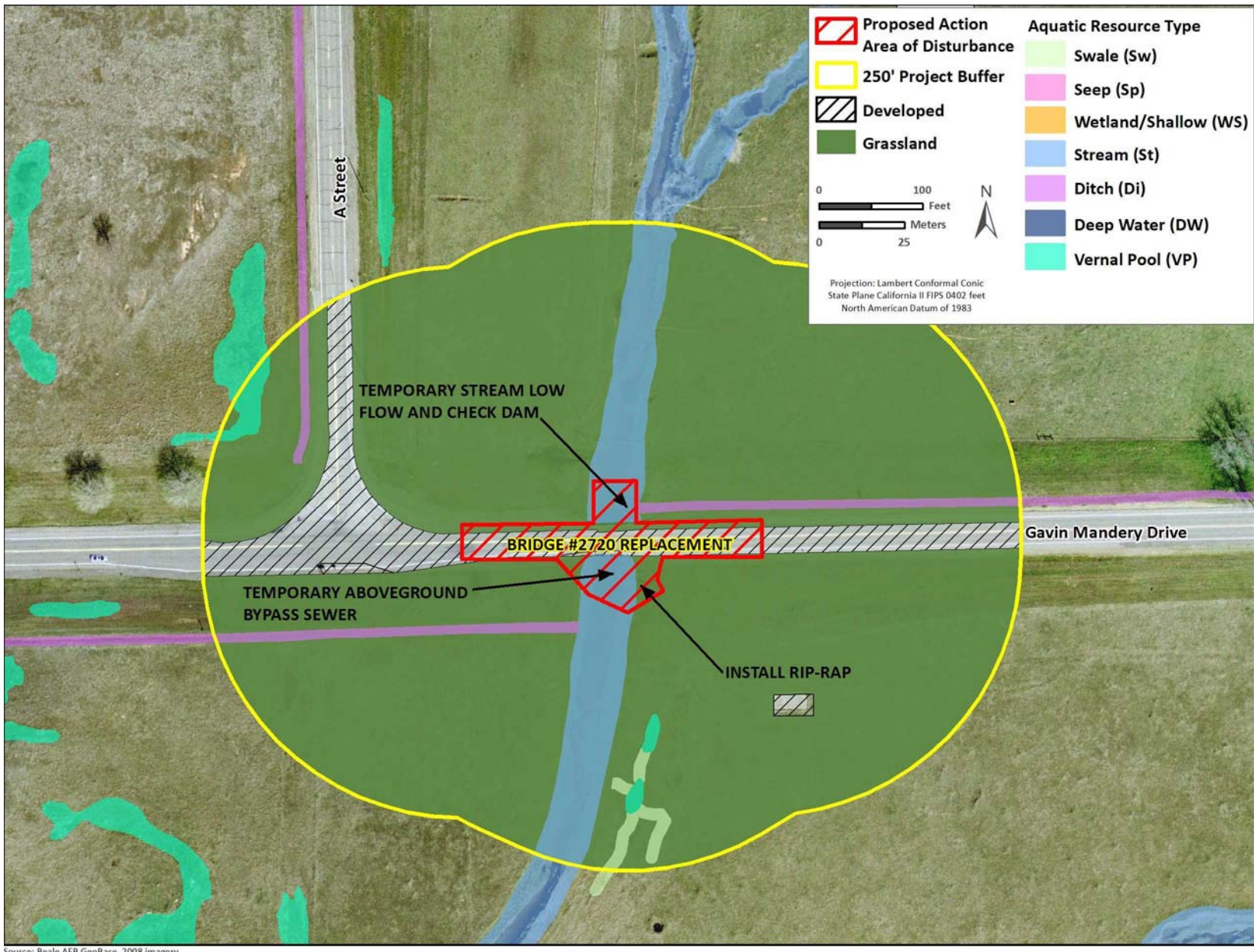


Figure 3-13. Biological Resources: Proposed Action Replace Bridge 2720

3.7.3.2.2 Alternatives

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Anticipated impacts from Alternative 1 would be similar to, but slightly greater than, those described under the Proposed Action (see **Section 3.7.3.2.1**). Impacts from Alternative 1 are summarized in **Table 3-15**. **Figures 3-14** and **3-15** show the biological resources associated with Alternative 1.

Vegetation. Long-term impacts on grassland vegetation from implementation of Alternative 1 would be similar to those described under the Proposed Action (see **Section 3.7.3.2.1**). Short-term, minor, adverse impacts would be expected from construction of the temporary bypass roads, as some fill would be installed in the creek bed, and from replacement of Bridges 2710 and 2720. Construction activities would result in the loss of 0.12 acres of grassland. However, upon completion of construction of Bridges 2710 and 2720, the temporary bypass roads and temporary bridge structures would be removed and the area would be restored to preexisting conditions. Therefore, no significant impacts would be expected.

Wildlife. Short-term, direct and indirect, minor, adverse impacts on wildlife from implementation of Alternative 1 would be similar to, but slightly greater than, those described under the Proposed Action (see **Section 3.7.3.2.1**). Noise created during construction of the temporary bypass roads could result in temporary, indirect, adverse impacts on wildlife. However, overall, impacts on wildlife would be less than significant.

Table 3-15. Summary of Impacts on Biological Resources Associated with Alternative 1

Project	Habitat Type	Acreage within Project Footprint	Acreage within 250 Foot Buffer	Project Impacts		
Alternative 1	Grassland	0.12	NA	Alternative 1	Vegetation	Direct impacts on 0.12 acres of grassland.
	Developed	0.06	NA		Wildlife	Short-term, direct and indirect, minor, adverse impacts on wildlife.
	Vernal pool	-	0.96			
	Other wetland (stream/ ditch)	-	3.4			
	Disturbed ground	-	NA		Special status species	0.96 acres of vernal pool crustacean habitat that may be affected, but not likely to be adversely affected. Indirect impacts on 3.4 acres of stream/ditch habitat.

Note: NA = Not Applicable

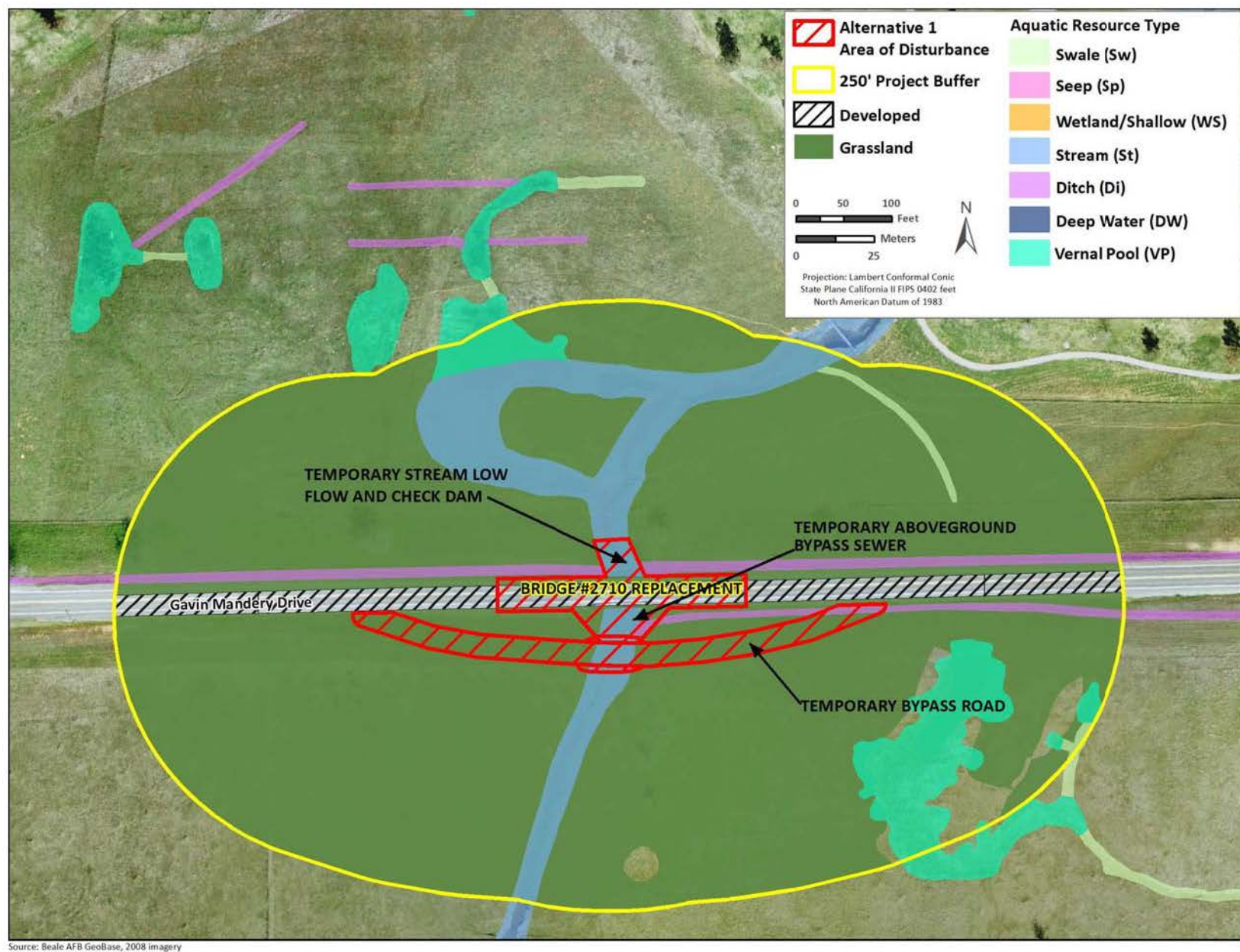


Figure 3-14. Biological Resources: Alternative 1 Replace Bridge 2710

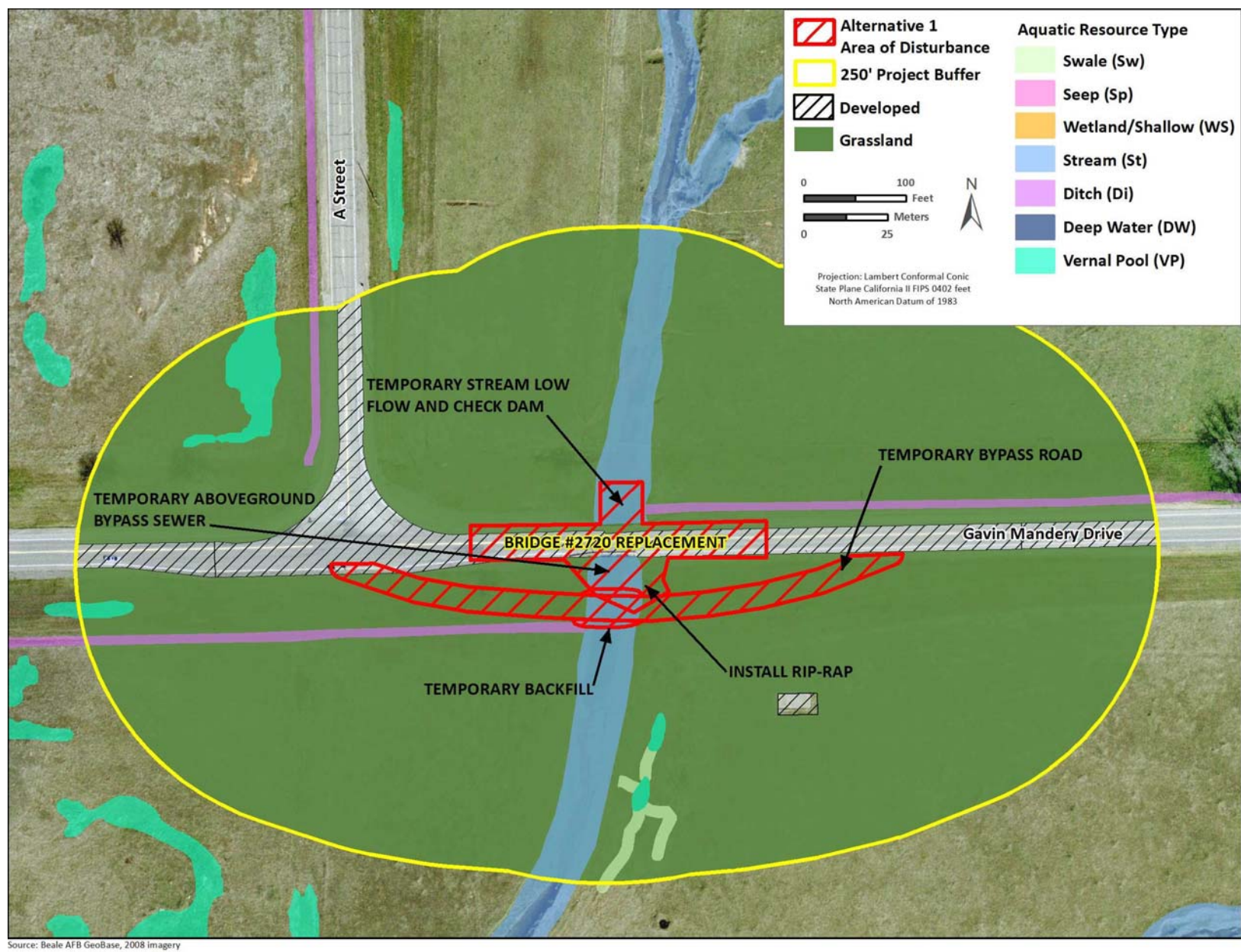


Figure 3-15. Biological Resources: Alternative 1 Replace Bridge 2720

Special Status Species. No direct, adverse impacts on vernal pool habitat would be expected under Alternative 1. There are 0.96 acres of special status vernal pool crustacean habitat that occurs within the 250-foot buffer (**Figure 3-14** and **3-15**); however, the nearest recorded special status vernal pool crustacean was located approximately 2,400 feet northeast of the project area for the replacement of Bridges 2710 and 2720. Construction of the bridges may affect, but is not likely to adversely affect vernal pool crustaceans found within the 0.96 acres of vernal pool habitat found within the 250-foot buffer; therefore, no compensatory mitigation is required. Implementation of general and species-specific environmental protection measures would minimize impacts as a result of the Proposed Action (see **Section 3.7.4** and **Table 2-10**).

Short-term, direct, minor, adverse impacts on migratory birds would be similar to those described under the Proposed Action (see **Section 3.7.3.2.1**). To avoid or minimize impacts on migratory birds, pre-construction surveys would be conducted and appropriate protective measures would be adopted if nesting birds were present (see **Section 3.7.4** and **Table 2-10**).

Summary. Impacts on biological resources from implementation of Alternative 1 would be similar to, but slightly greater than, those described under the Proposed Action due to construction of the temporary bypass roads and temporary bridge structures. The construction of the temporary bypass roads and temporary bridge structures would result in the loss of 0.12 acres of grassland. Additionally, 0.96 acres of vernal pools within the 250-foot buffer may be affected, but are not likely to be adversely affected by Alternative 1. Short-term, direct and indirect, minor, adverse impacts would be expected; however, upon completion of construction of Bridges 2710 and 2720, the temporary bypass roads and temporary bridge structures would be removed and the area would be restored to preexisting conditions. Therefore, impacts would not be considered significant.

3.7.3.2.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive and there would be no impacts on biological resources at Beale AFB.

3.7.3.3 Implement the Base Demolition Plan

3.7.3.3.1 Proposed Action

Building 355.

Vegetation. No impacts on vegetation would be expected from the demolition of Building 355. Implementation of the proposed project would be conducted on 0.7 acres of disturbed ground; therefore, no significant impacts on vegetation would be expected. **Figure 3-16** shows the biological resources for the Base Demolition Plan. Impacts from Alternative 1 are summarized in **Table 3-16**.

Wildlife. Noise created during demolition activities could result in adverse effects on wildlife. These effects would include subtle, widespread effects from the overall elevation of ambient noise levels. This would result in reduced communication ranges, interference with predator/prey detection, or habitat avoidance. More intense effects would include behavioral change, disorientation, or hearing loss. Predictors of wildlife response to noise include noise type (i.e., continuous or intermittent), prior experience with noise, proximity to a noise source, stage in the breeding cycle, activity, age, and sex composition. Prior experience with noise is the most important factor in the response of wildlife to noise, because wildlife can become accustomed (or habituate) to the noise. The rate of habituation to short-term demolition is not known. Wildlife could be permanently displaced from the areas where the habitat is cleared and temporarily dispersed from areas adjacent to the project areas during demolition periods.

Wildlife species inhabiting these sites might be displaced as the sites are demolished, but would be expected to move temporarily to adjacent less-utilized habitat and then potentially return to the area. Increased mortality of less-mobile species would be expected as the result of unavoidable direct impacts associated with demolition activities. Overall, impacts on wildlife would be less than significant.

Special Status Species. No direct adverse impacts on vernal pool habitat would occur under the Proposed Action (see **Figure 3-16**). The USAF requested informal consultation with the USFWS regarding potential impacts to special status vernal species habitat on 15 January 2014. On 31 January 2014, the USFWS concurred with the determination that the demolition of Building 355 may affect, but is not likely to adversely affect vernal pool crustaceans found within the 0.47 acres of vernal pool habitat found within the 250-foot buffer; therefore, no compensatory mitigation is required. Implementation of general and species-specific environmental protection measures would minimize impacts as a result of the Proposed Action (see **Section 3.7.4** and **Table 2-10**).

Demolition of Building 355 could have a short-term, direct, minor, adverse impact on several species of bats that are known to occur on Beale AFB and sometimes use buildings to roost. Developed areas generally provide no suitable habitat for special status species; however, buildings could provide roosting habitat for special status bats. These impacts would be avoided by inspecting buildings for bats prior to demolition (see **Section 3.7.4** and **Table 2-10**). Inspections would be conducted prior to demolition and if bats are found to be present they would be excluded using an appropriate, non-lethal method. Maternity colonies would be excluded after young bats are volant. If overwintering bats are observed, demolition would be delayed until warmer temperatures allowed the bats to be safely excluded.

The proposed project could have short-term, direct, minor, adverse impacts on migratory birds by disturbing nesting sites during ground-disturbing activities. To avoid or minimize impacts on migratory birds, pre-construction surveys would be conducted and appropriate protective measures would be adopted if nesting birds were present (see **Section 3.7.4** and **Table 2-10**).

Building 1028.

Vegetation. Long-term, direct, negligible, adverse impacts on vegetation would be expected from the demolition of Building 1028. Implementation of the proposed project would result in a permanent loss of approximately 0.001 acres of vegetation. This is a negligible loss of vegetation and represents a very small portion of comparable vegetation in surrounding areas on Beale AFB. Therefore, no significant impacts on vegetation would be expected (see **Figure 3-16**).

Wildlife. Impacts on wildlife would be similar to those discussed for the demolition of Building 355.

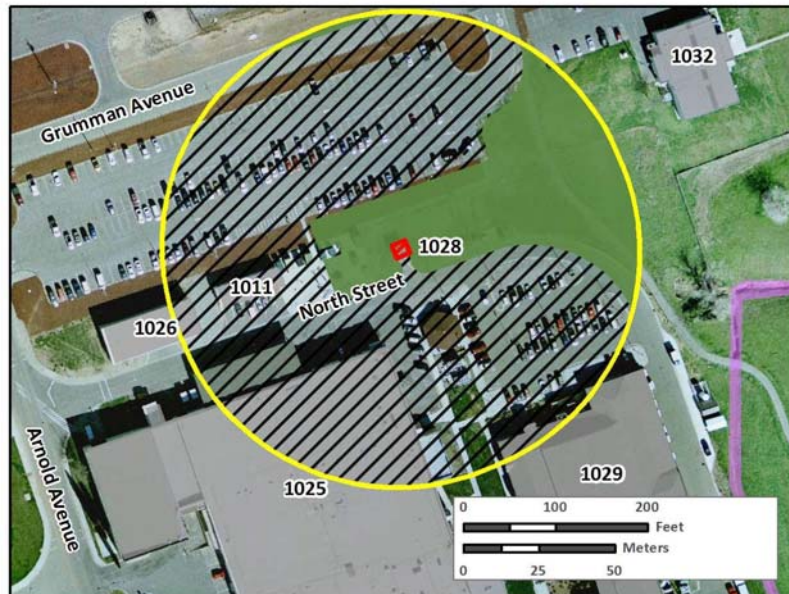
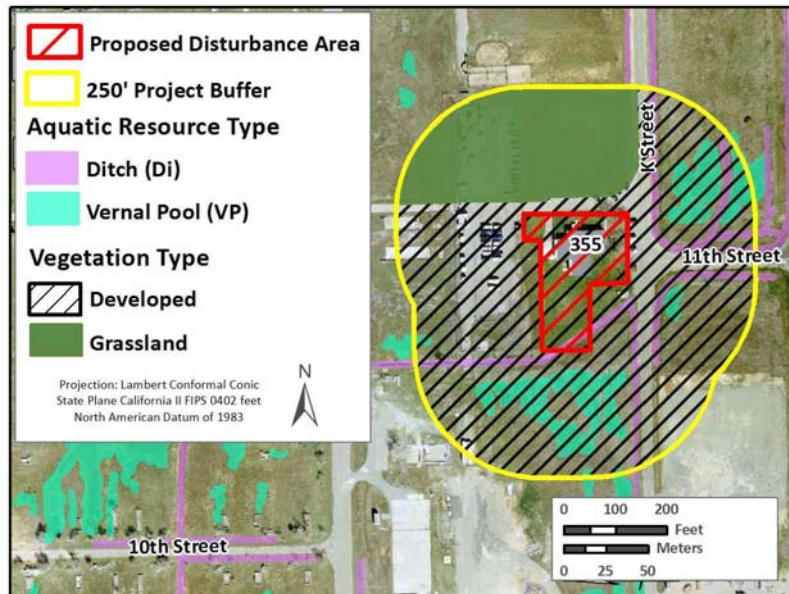
Special Status Species. Impacts of demolition of Building 1028 on bats would be similar to those discussed for the demolition of Building 355. These impacts would be avoided by inspecting buildings for bats prior to demolition (see **Section 3.7.4** and **Table 2-10**).

Building 2459.

Vegetation. No impacts on grassland vegetation would occur under the proposed project.

Wildlife. Impacts on wildlife would be similar to those discussed for the demolition Building 355.

Special Status Species. Impacts of demolition of Building 2459 on bats would be similar to those discussed for the demolition of Building 355. These impacts would be avoided by inspecting buildings for bats prior to demolition (see **Section 3.7.4** and **Table 2-10**).



Source: Beale AFB GeoBase, 2008 imagery

Figure 3-16. Biological Resources: Base Demolition Plan

**Table 3-16. Summary of Impacts on Biological Resources
for the Implementation of the Base Demolition Plan Projects**

Project	Habitat Type	Acreage within Project Footprint	Acreage within 250 Foot Buffer	Project Impacts		
Building 355 Demolition	Grassland	-	NA	Building 355 Demolition	Vegetation	No impacts.
	Developed	0.13	NA		Wildlife	No impacts.
	Vernal pool	-	0.47			
	Other wetland (stream/ditch)	0.02	0.43		Special status species	0.47 acres of vernal pool crustacean habitat that may be affected, but not likely to be adversely affected.
	Disturbed ground	0.72	NA			
Building 1028 Demolition	Grassland	0.001	NA	Building 1028 Demolition	Vegetation	Direct impacts on 0.001 acres of grassland.
	Developed	0.004	NA		Wildlife	No impacts.
	Vernal pool	-	-			
	Other wetland (stream/ditch)	-	-		Special status species	No impacts.
	Disturbed ground	-	-			
Building 2459 Demolition	Grassland	-	-	Building 2459 Demolition	Vegetation	No impacts.
	Developed	1.43	NA		Wildlife	No impacts.
	Vernal pool	-	-			
	Other wetland (stream/ditch)	-	0.18		Special status species	No impacts.
	Disturbed ground	-	-			
Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 Demolition	Grassland	-	NA	Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 Demolition	Vegetation	No impacts.
	Developed	3.17	NA		Wildlife	No impacts.
	Vernal pool	-	-			
	Other wetland (stream/ditch)	0.01	0.32		Special status species	No impacts.
	Disturbed ground	-	-			

Note: NA=Not Applicable

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116.

Vegetation. No impacts on grassland vegetation would occur under the proposed project.

Wildlife. Impacts on wildlife would be similar to those discussed for the demolition of Building 355.

Special Status Species. Impacts of demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 on bats would be similar to those discussed for the demolition of Building 355. These impacts would be avoided by inspecting buildings for bats prior to demolition (see **Section 3.7.4** and **Table 2-10**).

Summary. Construction and operational activities associated with implementation of the Base Demolition Plan would not have a significant impact on biological resources. Demolition activities would result in impacts on 0.001 acres of grassland. The Environmental Office has worked with the project proponent to identify a series of avoidance, minimization, and compensation measures to be implemented as part of the Proposed Action. **Table 3-16** provides a summary of impacts on biological resources from implementation of the Base Demolition Plan.

3.7.3.3.2 Alternatives

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.7.3.3.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and there would be no impacts on biological resources at Beale AFB.

3.7.4 Environmental Protection Measures

The BMPs and environmental protection measures presented as follows are based largely on the SAMP PBO for Beale AFB (USFWS 2012b).

3.7.4.1 General Measures

General Measure 1: Preconstruction Surveys. A USFWS-approved biologist would conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species are present prior to the start of construction. These surveys would be conducted 2 weeks prior to the start of construction activities in any sensitive habitat. If any federally listed species are found during the preconstruction surveys, the USFWS-approved biologist would contact the USFWS to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB would submit the name(s) and credentials of biologists who would conduct these preconstruction surveys. No project activities would begin until proponents have received written approval from the USFWS that the biologist(s) is qualified to conduct the work.

General Measure 2: Construction Monitoring. A USFWS-approved biologist would monitor construction activities in or adjacent to sensitive habitats. The biological monitor would ensure compliance with the avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the UWFWS-approved biologist would have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biological monitor exercises this authority, he/she must notify the UWFWS by telephone and letter within one working day.

General Measure 3: Environmental Awareness Training. Environmental awareness training would be provided for all construction personnel working on Beale AFB. Training would be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program would consist of a briefing on environmental issues relative to the proposed project. Training would be conducted by a USFWS-approved biologist. The training program would include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that could occur in the project areas. The presentation would also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information would be distributed to all personnel who enter the project site. Upon completion of the orientation, employees would sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms would be filed at Beale AFB offices and would be accessible to the appropriate resource agencies.

General Measure 4: Invasive Species. A USFWS-approved biological monitor would ensure that the spread or introduction of invasive exotic plant species would be avoided to the maximum extent possible. When practicable, invasive exotic plants identified in the project area would be removed.

General Measure 5: USFWS Notification. Beale AFB would track the area of impact resulting from the Proposed Action and will submit a report to the USFWS summarizing these acreages on a project-by-project basis.

General Measure 6: Erosion Control. All wetlands/drainages/vernal pools, if present, would have erosion-control measures (e.g., straw waddles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer would be designated with fencing to ensure no equipment or construction workers access those protected areas.

General Measure 7: Reseeding. All areas of ground disturbance or exposed soil would be reseeded with a native "weed free" seed mix approved by the Beale AFB Environmental Office.

General Measure 8: Exclusionary Period. No work would be conducted within 250 feet of vernal pools and streams between 1 November and 1 May, unless specifically approved by the Beale AFB environmental office who will field verify soil saturation, visual ponding, and expected surface disturbance. The USFWS would be notified of any work approved between 1 November and 1 May.

General Measure 9: Demarcation of Sensitive Areas. Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (e.g., vernal pool branchiopods) would be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing would designate exclusion zones where construction activities cannot occur. The flagging and fencing would be clearly marked as an environmentally sensitive area. The contractor would remove all fencing, stakes, and flagging within 60 days of construction completion.

General Measure 10: Off-Road Travel. Off-road travel outside of the demarcated construction boundaries would be prohibited.

General Measure 11: Demarcation of Work and Staging Areas. Beale AFB (or the contractor to Beale AFB) would provide all materials to stake and flag boundaries of the work area. Beale AFB would coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans, valley elderberry longhorn beetle, giant garter snake, or their habitat. The contractor would remove all fencing, stakes, and flagging within

60 days of construction completion. Orange construction barrier fencing would designate exclusion zones where construction activities cannot occur.

General Measure 12: Report Kills/Injuries. Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, would immediately report the incident to the biological monitor. The biological monitor would inform the 9 CES/CEIE. The 9 CES/CEIE would verbally notify the Sacramento Fish and Wildlife Office within 3 days and would provide written notification of the incident within 5 days.

General Measure 13: Fueling and Servicing in Designated Areas. Motor vehicles and equipment would only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas would occur at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB would prepare a plan to allow a prompt and effective response to any accidental spills. All workers would be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

General Measure 14: Garbage Removal. During construction activities, all trash that could attract predators would be properly contained, removed from the work site daily, and disposed of. Following construction, all refuse and construction debris would be removed from work areas. All garbage and construction-related materials in construction areas would be removed immediately following project completion.

General Measure 15: Disposal of Excavated Soil. All soil excavated during construction occurring near vernal pool wetlands would be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies would be required prior to disposal of the excavated soil.

General Measure 16: Minimization of Access Routes. The number of access routes, number and size of staging areas, and the total area of the activity would be limited to the minimum necessary to achieve the project goal. Routes and boundaries would be limited to the minimum necessary to achieve the project goal would be clearly demarcated and would be outside of wetland/drainage areas.

General Measure 17: Speed Limits. All vehicle operators would follow the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads.

General Measure 18: Prohibited Items. No pets or non-military firearms would be allowed in the project area.

General Measure 19: Pesticide/Herbicide Use. The USFWS must approve any pesticide or herbicide use for projects that could affect Federal-listed species. If pesticides and herbicides are used at the project site, Beale AFB would ensure that label restrictions, and other restrictions mandated by the USEPA and the California Department of Food and Agriculture are observed.

General Measure 20: Trenches. No trenches would be left open at the end of the day; trenched areas would be compacted and restored to normal grade. Excavated trenches would be revegetated.

3.7.4.1 Measures for Vernal Pool Crustaceans

Vernal Pool Measure 1: Best Management Practices. BMPs would be implemented to prevent sediment from entering vernal pools that are located within 250 feet, or have a hydrologic connection to the project

site, including the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.

Vernal Pool Measure 2: Biological Monitor. A USFWS-approved biologist from 9 CES/CEIE would monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the Proposed Action. The biological monitor would assist construction personnel in compliance with all conservation measures and guidelines. The monitor would be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.

Vernal Pool Measure 3: Environmental Awareness Training. A USFWS-approved biological monitor from 9 CES/CEIE would conduct environmental awareness training for construction crews before and during project implementation. The education program would briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the proposed project areas. Awareness training would cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and would include the penalties for violating the provisions of the ESA. Environmental awareness training would be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews.

Vernal Pool Measure 4: Demarcating Habitat. Potential vernal pool crustacean habitat adjacent to the construction area would be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.

Vernal Pool Measure 5: Work and Staging Boundaries. All work boundaries and staging areas would be clearly identified with staking or flagging to ensure no vehicles or equipment would enter vernal pool areas.

Vernal Pool Measure 6: Dust Control. All road areas would be watered during project construction to prevent excessive dust from silting nearby vernal pools.

3.7.4.2 Measures for Other Wildlife

Wildlife Measure 1: Timing of Construction Activities. All building demolition, vegetation clearing, or tree removal would occur outside of the bird breeding season, as appropriate. To avoid disturbances to potential nesting birds, a survey would be conducted prior to any construction or demolition activities. If nesting birds are present, nests would be flagged and avoided to the maximum extent possible. Standard mitigation procedures in conformance with the MBTA would be implemented should it be necessary to relocate birds during demolition.

Wildlife Measure 2: Bat Surveys and Exclusion. Buildings identified for demolition would be inspected by a biologist experienced in locating bats and bat colonies before the start of demolition or construction activities. If a bat colony is found then demolition would be delayed until appropriate, non-lethal exclusion can be conducted. Maternity colonies would be excluded after young bats are volant. Overwintering bats would be excluded when the weather warmed and the bats become active once again.

Wildlife Measure 3: Burrowing Owl Surveys. Preconstruction surveys would be conducted following the California Burrowing Owl Consortium survey protocol and mitigation guidelines (CBOC 1993).

3.8 Cultural Resources

3.8.1 Definition of the Resource

Cultural resources is a term of art or an “umbrella term” for many heritage-related resources, including prehistoric and historic sites, buildings, structures, districts, objects, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason.

Several Federal laws and regulations govern protection of cultural resources, including the NHPA (1966), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990). Cultural resources are commonly subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing), architectural resources (buildings or other structures or groups of structures that are of historic architectural, or other significance), and traditional cultural resources (for example, traditional gathering areas).

The NHPA defines historic properties as properties eligible for or listed in the NRHP. The NRHP is the official listing of properties significant in U.S. history, architecture, or prehistory, and includes both publicly and privately owned properties. The NRHP list is administered by the National Park Service. Historic properties might be buildings, structures, prehistoric or historic archaeological sites, districts, or objects that are generally 50 years of age or older, are historically significant, and that retain integrity that conveys this significance. More recent resources, such as Cold War-era buildings, might warrant listing if they have the potential to gain significance in the future or if they meet “exceptional” significance criteria.

Section 106 of the NHPA requires agencies to take into account the effect of their undertakings on properties listed in or eligible for listing in the NRHP and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

3.8.2 Existing Conditions

Cultural resources reported for Beale AFB include archaeological sites related to the prehistoric occupation of the area by the Southern Maidu (Nisenan); historic archaeological sites representing Euro-American settlement and the development of a farming/ranching economy; transportation, and mining; the U.S. Army operation of Camp Beale during World War II; and the Cold War-era Precision Acquisition Vehicle Entry Phased Array Warning System (PAVE PAWS) facility (Beale AFB 2011c). The immediate area’s early prehistory is not well known. By roughly 500 A.D., the region was home to populations that were part of the Augustine Pattern (ca. A.D. 500 to A.D. 1880). These populations were the ancestors of the ethnographically known Nisenan, the southern linguistic group of the Maidu tribe. The earliest Euro-American contacts were likely Spanish explorers led by José Canizares (1776) and Gabriel Moraga (1808), followed in the 1820s by the establishment of American and Hudson’s Bay Company fur trappers. The first permanent Euro-American occupation near present-day Beale AFB was John A. Sutter’s New Helvetia settlement near present-day Sacramento. In 1842, Sutter leased a portion of his grant to Theodore Cordua, whose ranch became the general site for the town of Marysville, founded after 1848 by Cordua’s former employee Charles Covillaud. The area’s population grew in the 1800s as deposits of gold, copper, and iron oxide were mined. Cattle ranching and farming of wheat and hops also became important economic activities (Beale AFB 2011c).

Camp Beale was established in 1942 to train the 13th Armored Division and the 81st and 96th Infantry divisions. Camp Beale also housed a prisoner-of-war camp for captured German soldiers. Camp Beale

was closed at the end of World War II, but in 1948 the post was transferred to the Air Force and renamed the Beale Bombing and Gunnery Range. The installation was used as a bombing and gunnery range until 1951. In 1952, the installation was transferred to the 2275th Air Base Squadron, which was later redesignated the 2275th Air Base Group. In 1954, Beale AFB was selected to house facilities for the Semi-Automatic Ground Environment program and the Headquarters Strategic Air Command Alert program as part of the Cold War defense effort. Beale AFB's contribution to the Strategic Air Command Alert program included the construction in 1957 of a runway and other facilities to support KC-135 stratotanker aircraft as the 100th Air Refueling Wing. In 1959, Beale AFB was designated the administration and service center for three Titan I Intercontinental Ballistic Missile complexes. Titan I missiles were phased out in 1964 in favor of the Titan II and Minuteman missiles. In 1963, the Semi-Automatic Ground Environment program was terminated and in 1964 the Semi-Automatic Ground Environment building was converted to house the new reconnaissance wing, making Beale AFB the primary base for the SR-71 "Blackbird." The SR-71 was operated by the 4200th Strategic Reconnaissance Wing. In 1976, the U-2 reconnaissance plane was transferred to the 9th Strategic Reconnaissance Wing at Beale AFB. In 1975, Beale AFB was selected as the site for one of four large phased-array radars known as the PAVE PAWS, a system designed to monitor potential Soviet missile launches. Today, Beale AFB is home to the 9 RW, the 940th Air Refueling Wing, the 548th Intelligence Group, the 7th Space Warning Squadron, and Air Force Office Special Investigations Detachments 218 and 11 (Beale AFB 2011c).

The Beale AFB Integrated Cultural Resources Management Plan (ICRMP) states that approximately 91 percent of Beale AFB has been systematically surveyed for cultural resources by more than 20 archaeological investigations and two historic architectural investigations (Beale AFB 2011c). The portions of the installation that remain unsurveyed are limited to heavily disturbed areas associated with the flightline, main base, and military family housing (MFH) areas in the interior of the installation. These areas have been defined by Beale AFB as "archaeological free zones" based on low potential for intact archaeological deposits (Beale AFB 2011c). Cultural resources identified by archaeological surveys include 37 prehistoric archaeological sites and 1 multicomponent site with a prehistoric component; these sites consist primarily of bedrock milling stations and flaked lithic artifact scatters. Archaeological surveys have also identified 4 pre-military historic sites on Beale AFB consisting of ranch/farm complexes, refuse scatters, and bridges. Some sites have been determined not eligible for NRHP, and some sites still require consultation with the SHPO for a formal determination of eligibility. Finally, surveys have identified 8 military-era historic sites and 6 sites with a military-era historic component. These sites consist primarily of the structural remnants of Camp Beale as established as a training site for the 13th Armored and 81st and 96th Infantry Divisions in October 1942 (Beale AFB 2011c).

The PAVE PAWS facility (consisting of 6 buildings) of the Cold War era has been determined eligible for the NRHP, despite being less than 50 years old. Many additional structures at Beale AFB are more than 50 years old or approaching 50 years old. Architectural surveys of these structures have recommended most as not eligible for NRHP listing, but the surveys and recommendations have yet to be reviewed and concurred with by the SHPO (Beale AFB 2011c).

All of the buildings that would be impacted by the proposed projects covered by this EA have been previously surveyed and determined ineligible for listing in the NRHP as part of an installationwide survey program. These surveys have not been submitted to the SHPO for their review and concurrence. The bridges on Beale AFB have never previously been surveyed or evaluated. All buildings and bridges proposed for demolition under this EA were surveyed and evaluated in November 2013 for NRHP-eligibility. All were recommended to be ineligible for listing in the NRHP. California OHP DPR 523 Forms were completed for each resource and were provided to Beale AFB in December 2013 for submittal to the California SHPO for review and concurrence.

Beale AFB has consulted with the California Native American Heritage Commission and with Nisenan and Maidu descendants of the area's indigenous populations, specifically the Enterprise Rancheria of Maidu Indians, Shingle Springs Rancheria, Berry Creek Rancheria of Maidu Indians, Mechoopda Indian Tribe of Chico Rancheria (Maidu), Mooretown Rancheria of Maidu Indians, and United Auburn Indian Community (Beale AFB 2011c). All of these tribes are federally recognized. These ongoing consultations have identified no resources of traditional, religious, or cultural significance to Native American tribes on Beale AFB. The consulted parties requested protection of the bedrock mortar site on Best Slough (CA-YUB-1157) and protection of burials should they be found on the installation.

3.8.3 Environmental Consequences

Overall Construction Impacts. None of the proposed projects will have a significant impact on cultural resources at Beale AFB. All built resources that will be impacted have been surveyed and evaluated for NRHP-eligibility. All have been determined to be ineligible for listing in the NRHP. One project, the proposed replacement of Bridges 2710 and 2720, is located near a previously identified archaeological site. With the proper protective measures integrated into the design, the project will have No Adverse Effect on historic properties under Section 106. Consultation with the California SHPO under Section 106 has been completed for all of the proposed projects. The California SHPO concurred with a determination of no historic properties affected for all three projects. Concurrence letters are presented in **Appendix C**.

Overall Operational Impacts. There will be no overall operational impacts on cultural resources at Beale AFB as a result of any of the three proposed projects.

3.8.3.1 Construct Temporary Lodging Facility

3.8.3.1.1 Proposed Action

The proposed construction of the TLF will have no significant impact on cultural resources under NEPA. There are no NRHP-eligible buildings within the viewshed of the proposed new TLF. Additionally, the size, scale, and massing of the new buildings, as proposed, is in keeping with the size, scale, and massing of these surrounding buildings.

The proposed site for the TLF has been surveyed twice for the presence of archaeological sites or materials, in 1983 and 1996. One archaeological site was identified approximately 400 meters northwest of the proposed TLF location. An additional pedestrian survey of the TLF site was conducted in 2013, in preparation for this project. No archaeological sites or materials have been discovered on the TLF site in any of these surveys. The construction of the proposed TLF has been coordinated with the California SHPO. Beale AFB has proposed to conduct an additional pedestrian survey of the site prior to construction to ensure that no potential archaeological sites are present. Additionally, if any inadvertent discoveries are made during the construction process, the SHPO will be contacted following Section 4.3.1 of Beale AFB's ICRMP.

In a letter sent to the California SHPO dated 15 August 2013, Beale AFB determined that there would be No Historic Properties Affected by the construction of the proposed TLF. The SHPO concurred with this determination in a letter dated 19 September 2013. Tribal consultation, following Section 101(d) of the NHPA, was initiated for this project. A letter outlining and requesting comments on the proposed new construction was sent to all Tribes with interest in Beale AFB lands.

Summary. The proposed construction of the TLF at Beale AFB will have no impact on cultural resources under NEPA.

3.8.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.8.3.1.3 *No Action Alternative*

The No Action Alternative to construction of the TLF would have no impact on cultural resources at Beale AFB.

3.8.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.8.3.2.1 *Proposed Action*

The replacement of Bridges 2710 and 2720 will have no significant impact on cultural resources. Both bridges were constructed in 1954 and are more than 50 years of age. Both bridges have been surveyed and evaluated and were determined ineligible for listing in the NRHP. California OHP DPR 523 Forms were completed for each bridge and have been submitted to the California SHPO for review and concurrence with this determination.

There is one archaeological site, AH 62, located in the vicinity of the bridges. The site was surveyed in 1993 and found to contain only historic-age materials that may relate to an 1870s-era homestead. No buildings from the homestead are extant. The proposed bridge replacement project will be designed to provide protection for the site, including the following measures:

- **Construction Buffer Fencing** – Construction limits will be established and temporary construction fencing will be placed around much of the construction areas to prevent unnecessary equipment movement outside the construction areas.
- **Environmental Awareness Training** – Prior to construction beginning, environmental awareness training will be conducted for the construction representatives by a Beale AFB environmental representative. Awareness of possible cultural resources in the construction area will be addressed.
- **Pre-construction survey** – An archaeological field survey will be programmed into the project timeline to occur before construction begins. If any new archaeological materials are found during that survey, Beale AFB cultural resources staff will contact the SHPO with their findings.
- **Inadvertent Discovery** – If any suspected archaeological remains are discovered during the project, the Beale AFB cultural program manager will be notified. Ground-disturbing activities will cease, and the potential remains will be evaluated and any other will be carried out according to Section 4.3.1 of the Beale AFB ICRMP, which outlines the standard operating procedures for the inadvertent discovery of archaeological resources.

A letter was submitted to the California SHPO on 13 February 2014, with associated forms, outlining the determination of NRHP eligibility for the bridges and a determination of No Adverse Effect for the construction of new bridges, if the above measures are included in the design for the protection of the archaeological site. In a response dated 3 March 2014, the California SHPO concurred with the determination of no adverse effect. Tribal consultation, following Section 101(d) of the NHPA, was initiated for this project. A letter outlining and requesting comments on the proposed new construction was sent to all Tribes with interest in Beale AFB lands.

Summary. The replacement of Bridges 2710 and 2720 will have no significant impact under NEPA.

3.8.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. The alternative for the replacement of Bridges 2710 and 2720 with construction of temporary roads would have no significant impact on cultural resources at Beale AFB once Section 106 coordination is completed. The construction of temporary roads to maintain access on Gavin Mandery Drive will create additional ground disturbance, increasing the possibility of impact on archaeological resources. However, temporary roads would be constructed to the south of Gavin Mandery Drive, while the known archaeological site, AH-62, is located to the north of the road. The same archaeological protection measures discussed in **Section 3.8.2.2.1** of this EA would be included in the project design.

3.8.3.2.3 *No Action Alternative*

The No Action Alternative for the replacement of Bridges 2710 and 2720 will have no significant impact on cultural resources at Beale AFB.

3.8.3.3 *Implement the Base Demolition Plan*

3.8.3.3.1 *Proposed Action*

Demolition of resources at Beale AFB will have no significant impact on cultural resources. All ten structures proposed for demolition (see **Table 3-17**) are at least 45 years of age or older. Two are older than 50 years. All have been evaluated for NRHP eligibility as part of a 2006 survey of Cold War-era resources and were determined ineligible for listing in the NRHP as part of that survey. That survey and recommendations were not reviewed or concurred with by the SHPO.

To complete Section 106 coordination for the current project, these individual properties were again surveyed and evaluated for NRHP eligibility. California OHP DPR523 Forms were completed, following the related guidance, and submitted to the SHPO for review and concurrence. During this evaluation, all buildings were determined to be ineligible for listing in the NRHP due to a lack of historic and architectural significance, or a lack of context.

A determination of No Historic Properties Affected was, therefore, made for the proposed demolition plan. Letters describing the project, the properties, and the determinations of eligibility and effect were submitted to the SHPO on 14 February 2014 and 25 February 2014, along with the OHP DPR 523 forms for each building. In responses dated 3 March 2014 and 3 March 2014, the California SHPO concurred with the determination of no adverse effect. Tribal consultation, following Section 101(d) of the NHPA, was initiated for this project. A letter outlining and requesting comments on the proposed new construction was sent to all Tribes with interest in Beale AFB lands.

Summary. The proposed demolition of 10 buildings on Beale AFB will have no impact on cultural resources.

3.8.3.3.2 *Alternatives*

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.8.3.3.3 No Action Alternative

Under the No Action Alternative there would be no impact on cultural resources under NEPA.

Table 3-17. NRHP Eligibility Status of Structures Proposed for Demolition at Beale AFB

Building Number	Name	Date of Construction	NRHP Status
355	Administrative Office	1953	Not eligible for NRHP inclusion
1028	Shop	1966	Not eligible for NRHP inclusion
2459	Currently occupied by Force Support Squadron, Youth Center, Civil Engineer Squadron/Furnishings Management Office, Medical Group Health & Wellness Center, Triage, Drug Demand Reduction Program	1952	Not eligible for NRHP inclusion
5109	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion
5110	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion
5111	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion
5112	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion
5113	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion
5114	Family Support Center	1967	Not eligible for NRHP inclusion
5116	Temporary Lodging Facility	1967	Not eligible for NRHP inclusion

3.8.4 Environmental Protection Measures

Measure 1: Cultural Resources Awareness Training. All construction and maintenance personnel would receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources. This training would address Federal, state, and local laws regarding cultural resources; the importance of these resources and the purpose and necessity of protecting them; and the appropriate methods for reporting and protecting inadvertently discovered cultural resources.

Measure 2: Inadvertent Discovery of Archaeological Resources. In the event that human remains, artifacts, or other archaeological materials are discovered during the course of any action, project, or activity at Beale AFB, all ground-disturbing activity at the point of discovery, within a reasonable buffer exclusionary area, must be halted and the Cultural Resources Manager notified. Any inadvertent discovery would be initially assumed to be potentially eligible for the NRHP and afforded appropriate protection until it is determined to be otherwise.

3.9 Utilities and Infrastructure

3.9.1 Definition of the Resource

Utilities and infrastructure consist of the systems that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of

infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. Utilities and infrastructure include power supply, water supply, sewer and waste water systems, storm water system, natural gas supply, liquid fuel supply, and communications.

3.9.2 Existing Conditions

The infrastructure and utility information contained in this section provides an overview of each infrastructure component and a summary of its existing general condition. Generally, infrastructure systems at Beale AFB are in fair condition with ample capacity for future growth; however, many of the systems require upgrades and ongoing maintenance (Beale AFB 2008). For purposes of analysis in this EA, utility usage is assumed to be negligible.

Water Supply. Beale AFB is completely independent from any outside water source. Water is supplied from seven on-installation wells and is pumped to a new treatment plant. All of the well pumps have been replaced with new submersible pumps. The Water Treatment Plant removes iron and manganese from the well water. The installation has an average demand of 1.28 mgd during the winter months and an average demand of 3.5 mgd during summer months. The installation has a total water storage capacity of 5.2 million gallons. Water mains consist of PVC, asbestos cement, cast iron, and steel. The installation has funded more than \$15 million in upgrades replacing most of the original steel pipe that was causing deterioration in water quality from tuberculation (i.e., formation of small mounds of corrosion products) and iron and manganese deposits. Wells have been renovated and casings grouted to prevent water intrusion from a perched aquifer (Beale AFB 2009b). However, improvements to the drinking and irrigation water supply have been determined to be necessary to comply with AFI 32-1067, *Water Systems*; The Public Health Security and Bioterrorism Preparedness Response Act of 2002, Section 1433, *Terrorist and Other International Acts* (12 June 2002); Department of Defense Directive (DODD) 5160.54, *Critical Asset Assurance Program*; and AFI 10-246, *Food and Water Protection Program* requirements. As of 2009, Beale AFB was using nearly all of the capacity of its water infrastructure.

Sanitary Sewer and Wastewater System. The Beale AFB sanitary sewer system consists of a gravity and force main collection system and a Wastewater Treatment Plant. The collection system consists of approximately 47 miles of sewer main, from 6 to 24 inches in diameter. Elevations at Beale AFB are 400 to 500 feet higher on the eastern region of the installation than on the western region. Thus, the majority of the sanitary sewer system is gravity fed. A number of ejector stations serve various facilities on the installation. The Wastewater Treatment Plant (Building 124) was constructed in 1940 and has a rated capacity of 5 mgd (Beale AFB 2009b). The plant treats on average 0.26 mgd, with a peak flow of 2.06 mgd in winter, leaving a residual capacity of 60 percent (Beale AFB 2011e). Effluent from the plant is pumped to the golf course pond or discharged to the 40-acre irrigation fields, and is regulated by NPDES Permit Number CA01 10299 (Beale AFB 2009b).

Storm Drainage System. The principal surface drainage systems for Beale AFB are Dry, Hutchinson, and Reeds creeks. The western parameters of these creeks are surrounded by a wide floodplain area. Dry Creek flows year round and Hutchinson and Reeds creeks are intermittent. Storm water runoff is discharged through a system of open ditches, storm sewers, culverts, and pipes. The system includes approximately 49 miles of curbs and gutters, most of which are located in the flightline and MFH. Storm water flow is directed to drainage ditches and is discharged into the creeks (Beale AFB 2011f). Beale AFB storm water discharges are regulated by the California Statewide General Industrial Activities Storm Water Discharge Permit Number 5A58S009991 (Beale AFB 2009b). There are storm water drainage ditches and swales in the vicinity of the Proposed Action throughout the installation.

Electrical System. Pacific Gas and Electric is the primary supplier of electrical power to Beale AFB. Power is delivered by three transmission lines to two metering points. These lines enter Beale AFB at the Grass Valley Substation. All substations, with the exception of the Doolittle Substation, have two transformers each, which are individually capable of supporting the full load of the substation. Most areas of the installation have redundant transmissions lines to increase reliability (Beale AFB 2009b). At peak demand, the installation is at approximately 35 percent of the design capacity of its electrical system (Beale AFB 2011f).

Natural Gas System. Pacific Gas and Electric supplies all of Beale AFB's noninterruptible natural gas to the maximum contracted amount of 32 million cubic feet per hour (768 million cubic feet per day) (Beale AFB 2009b).

Communications Systems. The Beale AFB communications system consists of aerial and underground copper and fiber optic cables. A government-owned, contractor-maintained, buried copper cable plant services the entire installation, except for MFH units, where the cable plant is exclusively owned and maintained by Pacific Bell. The government-owned copper cable plant was installed in 1989 as part of the Installation Information Digital Distribution System upgrade, which included the acquisition in 1994 of the Pacific Bell plant. Government cabling runs parallel to the previously used Pacific Bell plant, which has not been removed. The Beale AFB fiber optic backbone cable system joins local area networks together across the installation, and carries the heaviest information transfer traffic. This system is installed in conduits with three spare innerducts (Beale AFB 2009b).

Liquid Fuels. Jet Petroleum-Type 8 and Jet Petroleum-Thermally Stable (JPTS) are the only liquid aircraft fuels used on the installation. Jet Petroleum-Type 8 is delivered by pipeline, rail, or truck, while JPTS is delivered by rail or truck. Refueling trucks transport JPTS from the storage tank farm to the flightline. There is no pipeline or refueling hydrant system for JPTS. Motor gas and diesel fuel are also used and stored on installation (Beale AFB 2011f).

Solid Waste. In the past, solid waste had been disposed of on site, but all landfills on Beale AFB ceased accepting waste by 1996. Currently, the USAF has contracted with Recology Yuba Sutter, Inc., for the storage, collection, handling, and disposal of solid waste. The contractor collects refuse, yard, and wood waste; handles office paper and cardboard recycling; and handles refuse disposal for Beale AFB. Recology Yuba Sutter, Inc., provides containers and collection vehicles to the installation. In the Main Base area, commercial and industrial, non-hazardous solid waste is stored in leakproof, covered bulk containers, placed at approximately 113 locations. These containers are washed on the installation when needed and unserviceable containers are replaced within 5 working days. The number of containers is periodically analyzed and adjusted to keep pace with usage. Once collected, solid waste is transported to the Ostrom Road Landfill, an off-installation landfill in Wheatland, California, which is not at capacity (Beale AFB 2011e).

3.9.3 Environmental Consequences

Overall Construction Impacts. Short-term, minor to moderate, adverse impacts on infrastructure and utilities would be anticipated from the Proposed Action due primarily to service interruptions during construction. Long-term, minor, beneficial impacts on infrastructure and utilities would result from demolishing, upgrading, repairing, and replacing outdated infrastructure associated with the three projects. No long-term, adverse impacts are anticipated.

Overall Operational Impacts. Long-term, minor, beneficial impacts would be expected on utilities from improving the overall infrastructure at Beale AFB. Demolition of buildings at Beale AFB would improve

the overall state of the infrastructure as outdated facilities and their associated utilities are removed from the system.

3.9.3.1 Construct Temporary Lodging Facility

3.9.3.1.1 Proposed Action

Short-term, minor, adverse impacts on water supply would be anticipated from construction of the TLF. Water demand would increase slightly during construction activities; however, potential increases in demand associated with the Proposed Action would be temporary and not anticipated to exceed existing capacity. No long-term impacts would be anticipated, because the Proposed Action would not result in any personnel or water usage changes. No significant environmental effects on water supply from the construction of the TLF are anticipated; sufficient water supplies are available to serve the project.

Short-term, negligible, adverse impacts on sanitary sewer and wastewater systems would be anticipated. Because all of the wastewater at Beale AFB is treated on-installation, no wastewater could be transported off site. Potential increases in wastewater associated with construction activities would be temporary and not anticipated to exceed the existing capacity. No long-term, adverse impacts on the sanitary sewer and wastewater systems would be anticipated from the operation of the TLF.

Short-term, minor, adverse impacts on the storm drainage system would be anticipated from the construction of the TLF and associated realignment and culvert construction. Erosion, sedimentation, and soil compaction from construction activities would have adverse impacts on storm water flow and reinfiltration, and drainage realignment during construction could result in increased storm water runoff. However, the new drainage and culvert system would be designed so the predevelopment hydrology would be maintained as much as possible, and no long-term impacts are anticipated.

The disturbance of 272,794 ft² in the construction footprint would increase storm water runoff, though storm drainage system realignment and BMPs would be employed so that predevelopment hydrology would be maintained as much as possible and avoid impacts on vernal pools. Therefore, no significant impacts would be anticipated.

Short-term, negligible, adverse impacts on the electrical system would be anticipated from connecting the TLF to the existing electrical system. No long-term, adverse impacts would be anticipated from the construction of the TLF. Long-term, minor, adverse impacts on the electrical system would be anticipated from the operation of the TLF, though the increased demand would not be anticipated to exceed the capacity of Beale AFB's electrical system.

No impacts on the natural gas system would be anticipated from construction of the TLF. Construction activities associated with the Proposed Action would not require the use of the installation's natural gas system.

Long-term, minor, adverse impacts on the natural gas system would be expected from heating the TLF, though the increased demand would not be anticipated to exceed the capacity of Beale AFB's natural gas system.

Short-term, adverse impacts from potential service interruptions might be anticipated from construction of the TLF, though no long-term, adverse impacts would be anticipated. Communications infrastructure (e.g., fiber optic cable, telephone) would be developed in the newly constructed TLF as part of the Proposed Action. There would be no significant increase in the use of communications systems.

No impacts on the liquid fuel supply would be expected from construction or operation of the TLF. Construction activities associated with the Proposed Action would not require the use of the installation's liquid fuel supply.

Short-term, negligible, adverse impacts from the construction of the TLF would be anticipated on solid waste, as construction activities generate additional solid waste. Potential increases in solid waste associated with construction activities would be temporary and not anticipated to exceed the existing capacity of the landfill, and would comply with all Federal, state, and local statutes. No long-term impacts would be expected.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on infrastructure.

3.9.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.9.3.1.3 *No Action Alternative*

Short- and long-term, minor, adverse impacts on utilities are anticipated under the No Action Alternative, as deteriorating facilities would require more frequent and extensive maintenance, and service would be interrupted more frequently.

3.9.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.9.3.2.1 *Proposed Action*

Short-term, minor, adverse impacts on water supply would be anticipated from demolition and replacement of Bridges 2710 and 2720. Water demand would increase slightly during construction activities; however, potential increases in demand associated with the Proposed Action would be temporary and not anticipated to exceed existing capacity. No long-term impacts would be anticipated, because the Proposed Action would not result in any personnel or water usage changes. No significant environmental effects from the construction of the bridges are anticipated, and sufficient water supplies are available to serve the project.

No impacts on the electrical, waste water, storm drainage, natural gas, communications, or liquid fuel systems are anticipated from the Proposed Action.

Short-term, negligible, adverse impacts from the construction of the bridges would be anticipated on solid waste, as construction activities generate additional solid waste. Potential increases in solid waste associated with construction activities would be temporary and not anticipated to exceed the existing capacity, and would comply with all Federal, state, and local statutes. No long-term impacts would be expected.

Short-term, minor, adverse impacts on the sanitary sewer system would be anticipated during construction activities. The sanitary sewer line that parallels both bridges would be demolished and replaced. During planned demolition and construction activities, a temporary bypass for the sewer line would be installed to ensure continued sanitary sewer service. This would result in a temporary interruption of sanitary sewer service while the current pipeline is removed and the temporary bypass is installed.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on infrastructure.

3.9.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Alternative 1 would include the construction of a temporary bypass road in addition to bridge replacement. The construction of the bypass road would not result in any additional impacts beyond those described under the Proposed Action.

3.9.3.2.3 *No Action Alternative*

No impacts on utilities and infrastructure would be anticipated under the No Action Alternative.

3.9.3.3 Implement the Base Demolition Plan

3.9.3.3.1 *Proposed Action*

Building 355. No significant impacts on infrastructure would be expected from demolition of Building 355. Short-term, negligible to minor, adverse, and long-term, beneficial impacts would be expected on the electrical supply, natural gas system, water supply, sanitary sewer and wastewater treatment system, and communications from demolition of Building 355. Short-term interruptions could be experienced when facilities are disconnected from or connected to the distribution system on the installation. Long-term, beneficial impacts on the electrical supply, natural gas system, water supply, sanitary sewer and wastewater treatment system, and communications would be expected from the demolition of aged facilities with outdated systems. Short-term, negligible, adverse impacts from the demolition would be anticipated on solid waste, as demolition activities generate additional debris. Potential increases in solid waste associated with demolition activities would be temporary and not anticipated to exceed the existing capacity, and would comply with all Federal, state, and local statutes. No long-term impacts would be expected.

Building 1028. Demolition of Building 1028 would have similar impacts as those described for the demolition of Building 355. Short-term, negligible to minor, adverse, and long-term, beneficial impacts would be expected on the electrical supply, natural gas system, water supply, sanitary sewer and wastewater treatment system, and communications from demolition of Building 1028. No long-term impacts would be anticipated.

Building 2459. Demolition of Building 2459 would have similar impacts as those described for the demolition of Building 355. Short-term, negligible to minor, adverse, and long-term, beneficial impacts would be expected on the electrical supply, natural gas system, water supply, sanitary sewer and wastewater treatment system, and communications from demolition of Building 2459. No long-term impacts would be anticipated.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. Demolition of Buildings 5109 to 5514 and 5516 would have similar impacts as those described for the demolition of Building 355. Short-term, negligible to minor, adverse, and long-term, beneficial impacts would be expected on the electrical supply, natural gas system, water supply, sanitary sewer and wastewater treatment system, and communications from demolition. No long-term impacts would be anticipated.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on infrastructure.

3.9.3.3.2 Alternatives

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.9.3.3.3 No Action Alternative

Long-term, minor, adverse impacts on infrastructure and utilities would be expected under the No Action Alternative. Maintaining the obsolete, deteriorating, and unused facilities would divert funds from the maintenance, repair, and replacement of infrastructure on installation that are currently in use.

3.9.4 Environmental Protection Measures

Measure 1: Storm Drainage. Every effort would be made to preserve or restore the pre-project local hydrology, to minimize the adverse impacts of increased storm water volume or velocity. These measures include realigning existing swales and drainage ditches, minimizing impervious and compacted surfaces, landscaping, and the creation of new drainage features to mitigate storm water flow.

3.10 Transportation

3.10.1 Definition of the Resource

Transportation is defined as the system of roadways, highways, and all other transportation networks that are in the vicinity of the proposed project areas and could reasonably be expected to be affected by the Proposed Action. Traffic relates to changes in the number of vehicles on roadways and highways as a result of a proposed action.

3.10.2 Existing Conditions

Regional access to Beale AFB is provided by State Route (SR) 65, SR 70, and SR 20. SR 65 is a north-south directional roadway that extends from Interstate 80 in Roseville to SR 70, approximately 7 miles south of Marysville. Five roads provide access to the installation via five gates (Main Gate, Doolittle Gate, Grass Valley Gate, Wheatland Gate, and Vassar Lake Gate). North Beale Road extends from SR 70 in Linda to the Main Gate, and is the primary road that connects the installation and SR 70, Marysville, and Yuba City. Hammonton-Smartville Road is a two-lane rural roadway that provides access from North Beale Road in Linda to SR 20 near Smartville. It also provides access to the installation at the Doolittle Gate. Smartville Road is a two-lane rural roadway that provides access from the Grass Valley Gate to Hammonton-Smartville Road south of SR 20. South Beale Road is a two-lane roadway that provides access from SR 65 northwest of Wheatland to the Wheatland Gate. Spenceville Road is a two-lane rural roadway that connects SR 65 at the City of Wheatland to the Vassar Lake Gate (Beale AFB 2008).

The road network on Beale AFB consists of arterials, collectors, and local streets. The arterials that carry the majority of the traffic include Gavin Mandery Drive (Main Gate to Camp Beale Highway), Doolittle Drive (Doolittle Gate to Warren Shingle Road), Grass Valley Road/Warren Shingle Road (Grass Valley Gate to J Street), Camp Beale Highway (Vassar Lake Gate to Warren Shingle Road), and J Street (Wheatland Gate to Doolittle Drive). Collector streets connect local streets to arterials. Collector streets on the installation include Arnold and Grumman avenues in the flightline area, A and C streets in the Main Base area, and East and West Garryana streets and Delta Drive in the housing area. The most recent Traffic Study for Beale AFB was completed in 1997, and showed that all intersections were

operating at either an A- or B-level of service (i.e., free-flow or reasonable free-flow operations) during peak traffic hours. Beale AFB has an abundance of parking capacity (Beale AFB 2008).

Other modes of transportation on the installation include pedestrian routes, bicycle paths, installation shuttle buses, military passenger-cargo terminals, and installation railheads. Pedestrian routes include walkways but have been described as “generally not inviting” in the Beale AFB General Plan (Beale AFB 2008). There is a paved bicycle path to the south of Warren Shingle Road that connects the Beale AFB MFH area with the Main Base and flightline areas. The installation’s shuttle bus generally operates regularly during business days Monday through Friday, from 6:00 a.m. to 8:00 a.m. and 11:00 a.m. to 5:00 p.m., with stops in the flightline, Main Base, and housing areas. Cargo flights at Beale AFB are rare. Installation railheads are used for Beale AFB’s locomotive, which is primarily used to move arriving fuel tank cars. There are railhead stations in the southern portion of the flightline area east of J Street and south of Warren Shingle Road. Public mass transportation service in Yuba County is provided by the Yuba/Sutter Transit Authority, which discontinued service to Beale AFB due to a lack of patronage and demand (Beale AFB 2008).

3.10.3 Environmental Consequences

Impacts on transportation are considered to be adverse if the Proposed Action would result in any of the following:

- A substantial increase in traffic on local roadways
- Alter traffic patterns that could cause an increase in congestion
- Interfere with any mode of transportation
- Degrade transportation systems.

Overall Construction Impacts. Short-term, minor, direct, adverse effects on the transportation network would be expected from implementing the Proposed Action due to increased traffic and parking lot use associated with construction equipment and contractor vehicles. Construction, demolition, and repair activities would require delivery of materials to, and removal of debris from, repair sites. Designated work areas would be staged near project sites, which could disrupt traffic through lane closures. Traffic associated with construction and repair activities would compose a small percentage of the total existing traffic on the installation. All contractor vehicles would be required to enter Beale AFB through the Wheatland Gate to undergo vehicle inspections. While the Wheatland Gate has additional lanes to reduce the wait time for incoming traffic during peak hours, increased traffic could cause a short-term, minor, adverse effect. Many of the heavy construction vehicles would be driven to the site and kept on site for the duration of repair activities, resulting in relatively few additional trips. Portions of the transportation network could be damaged during the repair or replacement of distribution infrastructure; however, effects on the transportation network would be avoided or minimized to the greatest extent possible and any portions of the transportation network damaged during repair activities would be restored to their previous condition.

Additional short-term, negligible, impacts on the traffic volume of Interstate 80, SR 65, SR 70, and SR 20 would be expected from contractor vehicles traveling to the installation. Impacts would be dependent on the travel routes of the contractor vehicles; however, these are major highways and the additional contractor vehicles would only consist of a small portion of the total traffic volumes on these roads.

Short-term, minor, adverse impacts on the transportation network at Beale AFB would be expected from temporary bridge closures. While Bridges 2710 and 2720 are being demolished and replaced, travel would have to be diverted to alternate routes. Roads could become more congested as traffic patterns shifted to accommodate bridge repair or replacement. Once complete, traffic patterns would return to

original levels. The Proposed Action would not involve a change in the number of personnel; therefore, there would not be traffic volume changes with respect to personnel.

Overall Operational Impacts. Although some projects would change current installation housing functions, they would not generally affect long-term traffic patterns because these functions are currently located nearby. However, the construction of the playground and picnic areas would bring additional traffic to the area.

Projects would either add or remove parking spaces throughout the installation. Traffic patterns would change based on travel to access parking lots. Long-term, negligible, beneficial impacts on traffic patterns would be expected from additional available parking, which would increase parking availability on the installation and reduce congestion in current parking lots. Long-term, negligible, adverse effects on transportation would be expected because vehicles would travel to access and maintain proposed infrastructure in new locations.

Long-term, negligible, adverse effects on pedestrian mobility would be expected due to the demolition of sidewalks. However, construction of sidewalks associated with projects would generally be designed to replace the demolished sidewalks, limiting adverse effects on pedestrian mobility. Long-term, minor, adverse effects on pedestrian mobility would be expected from the demolition of the running trail. Pedestrians that use the current running trail would have to travel to different areas of the installation or use available sidewalks to run.

3.10.3.1 Construct Temporary Lodging Facility

3.10.3.1.1 *Proposed Action*

Short-term, minor, direct, adverse effects on the transportation network would be expected from implementing the proposed project due to increased traffic and parking lot use associated with construction equipment and contractor vehicles. The construction phase of the proposed project would require delivery of materials to the construction site. Construction traffic would compose a small percentage of the total existing traffic on the installation. All contractor vehicles are required to enter Beale AFB through the Wheatland Gate to undergo vehicle inspections. While the Wheatland Gate has additional lanes to reduce the wait time for incoming traffic during peak hours, the increase in construction traffic could cause a short-term, minor, adverse effect. Many of the heavy construction vehicles would be driven to the site and kept on site for the duration of construction activities, resulting in relatively few additional trips.

Additional short-term, negligible, impacts on the traffic volume of Interstate 80, SR 65, SR 70, and SR 20 would be expected from contractor vehicles traveling to the installation. Impacts would be dependent on the travel routes of the contractor vehicles; however, these are major highways and the additional contractor vehicles would only consist of a small portion of the total traffic volumes on these roads.

Although this project would change installation housing functions, it would not generally affect long-term traffic patterns because these functions are currently located nearby. However, the construction of the playground and picnic areas would bring additional traffic to the area. Visitor traffic would travel along C Street and Robert Nicoletti Way to access the proposed parking lot associated with the TLF. Long-term, negligible, adverse impacts on traffic patterns would be expected from the demolition of currently available parking; however, the proposed parking facility associated with the TLF would reduce those impacts.

Long-term, negligible, adverse effects on pedestrian mobility would be expected due to the demolition of sidewalks. However, construction of sidewalks associated with the TLF would be designed to replace the demolished sidewalks, limiting adverse effects on pedestrian mobility. Long-term, minor, adverse effects on pedestrian mobility would be expected from the demolition of the running trail. Pedestrians that use the current running trail would have to travel to different areas of the installation or use available sidewalks to run.

Summary. Construction and operational activities associated with the proposed projects would not have a significant impact on transportation.

3.10.3.1.2 Alternatives

No alternatives for the TLF were carried forward for analysis.

3.10.3.1.3 No Action Alternative

Under the No Action Alternative, the TLF would not be constructed. Housing functions would not be relocated and traffic patterns would be expected to remain at pre-construction levels. Short-term, negligible, adverse impacts on the transportation network would be expected if repairs to the current lodging facilities were required. Once repairs were completed, traffic patterns would be expected to return to normal. Long-term, negligible, beneficial impacts on pedestrians would be expected because the running trail at the proposed TLF site would be maintained.

3.10.3.2 Replace Bridges 2710 and 2720 on Gavin Mandery Drive

3.10.3.2.1 Proposed Action

Short-term, minor, adverse impacts on the transportation network at Beale AFB would be expected from replacing Bridges 2710 and 2720. These bridges would be completely demolished and replaced with new bridges. During construction, Gavin Mandery Drive would be closed between A Street and the installation landfill and all traffic would be diverted to alternate routes. This would result in a short-term, minor, adverse effect on the transportation network; however, traffic flow along this portion of Gavin Mandery Drive is minor and traffic would easily be diverted.

Short-term, minor, direct, adverse effects on the transportation network would be expected from implementing the proposed project due to increased traffic and parking lot use associated with construction equipment and contractor vehicles. The repair activities would require delivery of materials to, and removal of debris from, repair sites. Construction traffic would compose a small percentage of the total existing traffic on the installation. All contractor vehicles are required to enter Beale AFB through the Wheatland Gate to undergo vehicle inspections. While the Wheatland Gate has additional lanes to reduce the wait time for incoming traffic during peak hours, the increase in construction traffic could cause a short-term, minor, adverse effect. Many of the heavy construction vehicles would be driven to the site and kept on site for the duration of construction activities, resulting in relatively few additional trips.

Additional short-term, negligible, impacts on the traffic volume of Interstate 80, SR 65, SR 70, and SR 20 would be expected from contractor vehicles traveling to the installation. Impacts would be dependent on the travel routes of the contractor vehicles; however, these are major highways and the additional contractor vehicles would only consist of a small portion of the total traffic volumes on these roads.

This project would not interfere or coincide with any non-motor vehicle modes of transportation.

Summary. Construction and operational activities associated with the proposed projects would not have a significant impact on transportation.

3.10.3.2.2 *Alternatives*

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. To reduce traffic impacts during demolition and construction activities, 24-foot-wide, unpaved, temporary bypass roads would be installed south of Bridges 2710 and 2720 in order to maintain traffic flow on Gavin Mandery Drive. Once complete, traffic patterns would return to pre-construction levels. No additional impacts would be anticipated beyond those described for the Proposed Action.

3.10.3.2.3 *No Action Alternative*

Under the No Action Alternative, bridges on Gavin Mandery Drive would not be replaced. Long-term, minor, adverse impacts on transportation would be expected. The bridges would continue to deteriorate and require reductions of maximum loads and an increased number of inspections. If deterioration continues, bridges could be closed until repairs could be completed. While the bridges were being restricted or repaired, travel along Gavin Mandery Drive would have to be diverted to Warren Shingle Road. Traffic would become more congested along Warren Shingle Road as traffic patterns shifted to accommodate bridge repair and replacement. Once repaired, traffic patterns would be expected to return to original conditions. If bridges collapse, traffic would be diverted until a new bridge could be completed.

3.10.3.3 Implement the Base Demolition Plan

3.10.3.3.1 *Proposed Action*

Building 355. Short-term, minor, direct, adverse effects on the transportation network would be expected from implementing the proposed project due to increased traffic and parking lot use associated with demolition equipment and contractor vehicles. The demolition phase of the proposed project would require delivery of materials to the demolition site. Demolition traffic would compose a small percentage of the total existing traffic on the installation. All contractor vehicles are required to enter Beale AFB through the Wheatland Gate to undergo vehicle inspections. While the Wheatland Gate has additional lanes to reduce the wait time for incoming traffic during peak hours, the increase in construction traffic could cause a short-term, minor, adverse effect. Many of the heavy demolition vehicles would be driven to the site and kept on site for the duration of demolition activities, resulting in relatively few additional trips.

Additional short-term, negligible impacts on the traffic volume of Interstate 80, SR 65, SR 70, and SR 20 would be expected from contractor vehicles traveling to the installation. Impacts would be dependent on the travel routes of the contractor vehicles; however, these are major highways and the additional contractor vehicles would only consist of a small portion of the total traffic volumes on these roads.

Short-term, negligible impacts on traffic patterns on Beale AFB would be expected from the demolition of Building 355. Activities within this building would be relocated to other areas, which would reduce traffic patterns near Building 355 and would be expected to increase traffic patterns near the relocation of these activities. Long-term, negligible, adverse impacts on traffic patterns would be expected from the removal of available parking, which would increase congestion in remaining parking lots. The proposed project would not involve a change in the number of personnel; therefore, there would not be traffic volume changes with respect to personnel.

Long-term, negligible, adverse effects on pedestrian mobility would be expected due to the demolition of sidewalks. However, these sidewalks would not have been used as frequently after demolition of Building 355, limiting adverse effects on pedestrian mobility.

Building 1028. The demolition of Building 1028 would have similar impacts on transportation to the demolition of Building 355. No impacts on traffic patterns would be expected as no roadways would be impacted by construction. Demolition could impact the parking availability in Building 1025, as demolition equipment would access Building 1028 from the Building 1024 parking lot. No long-term impacts are anticipated.

Building 2459. The demolition of Building 2459 would have similar impacts on transportation to the demolition of Building 355. No impacts on traffic patterns would be expected as no roadways would be impacted by construction. Demolition of Building 2459 would result in a reduction in available parking; however, this is not anticipated to impact negatively the overall availability of parking on Beale AFB. No long-term impacts are anticipated.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. The demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would have similar impacts on transportation as the demolition of Building 355. No impacts on traffic patterns would be expected as no roadways would be impacted by construction. Demolition of Building 2459 would result in a reduction in available parking; however, this is not anticipated to impact negatively the overall availability of parking on Beale AFB. No long-term impacts are anticipated.

Summary. Construction and operational activities associated with the proposed projects would not have a significant impact on transportation.

3.10.3.3.2 *Alternatives*

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.10.3.3.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not implement the Base Demolition Plan and the identified buildings would not be demolished. The transportation network would be expected to remain at pre-demolition conditions.

3.10.4 Environmental Protection Measures

See Health and Safety *Measure 4: Road Closure Coordination* (see **Section 3.4.4**).

3.11 Hazardous Materials and Waste

3.11.1 Definition of the Resource

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Material Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–108.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) at 42 U.S.C. §6903(5), as amended by the Hazardous and Solid Waste Amendments, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These materials are called universal wastes and their associated regulatory requirements are specified in 40 CFR Part 273. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps.

If hazardous waste is generated, the contractor must perform, as per State and Federal regulations, proper characterization, accumulation and disposal of hazardous wastes. Asbestos, lead-based paint, PCB's, petroleum products, paints, caulks, solvents, adhesives and coatings are just some of the products that potentially may be characterized as hazardous wastes upon disposal. The Resource Conservation and Recovery Act (RCRA) sets certain minimum standards for waste management. Additionally, the State of California has more restrictive requirements than RCRA.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACMs, PCBs, and LBP. The USEPA has given authority to regulate these special hazard substances by the Toxic Substances Control Act Title 15 U.S.C. Chapter 53. The USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR Part 763 with additional regulation concerning emissions (i.e., 40 CFR Part 61). Whether from lead abatement or other activities, depending on the quantity or concentration, the disposal of the LBP waste is regulated by the RCRA at 40 CFR 260. The disposal of PCBs is addressed in 40 CFR Parts 750 and 761. The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

The DOD developed the ERP to facilitate thorough investigation and cleanup of contaminated sites on military installations (i.e., active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the MMRP are components of the ERP. The Installation Restoration Program requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The MMRP addresses nonoperational rangelands that are suspected or known to contain UXO, discarded military munitions, or munitions constituent contamination.

For the USAF, AFD 32-70 and the AFI 32-7000 series incorporate the requirements of all Federal regulations, and other AFIs and DODDs for the management of hazardous materials, hazardous wastes, and special hazards. Evaluation extends to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action.

3.11.2 Existing Conditions

Hazardous Materials and Petroleum Products. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and to those who manage, monitor, or track any of those activities. Under AFI 32-7086, the USAF has established roles, responsibilities, and requirements for a hazardous materials management

program. The purpose of the hazardous materials management program is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, minimize USAF dependence on hazardous materials, and maintain compliance with laws and regulations for hazardous material usage. The program includes the activities and infrastructure required for ongoing identification, management, tracking, and minimization of hazardous materials. The *Hazardous Materials Management Plan* (HMMP) applies to all hazardous materials brought onto Beale AFB (Beale AFB 2012).

Hazardous and Petroleum Wastes. The *Beale Hazardous Waste Management Plan* (HWMP) is required under AFI 32-7042, *Waste Management*, and complies with 40 CFR Parts 260 to 272. It prescribes the roles and responsibilities of all members of Beale AFB and organizations assigned to Beale AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management. The plan outlines procedures for transport, storage, and disposal. The Hazardous Waste Stream Inventory is maintained as part of the Beale HWMP.

Beale AFB is a permitted Large Quantity Generator of hazardous waste. Hazardous wastes generated at Beale AFB include corrosive cleaning compounds, photographic waste, solvents, waste paint-related materials, waste petroleum products, waste generated under the Comprehensive Universal Waste Program, and other miscellaneous wastes. 9 CES/CEIE manages Beale's Hazardous Waste program. All Hazardous Waste generating, accumulation, and shipping activities, from any area on Beale AFB property must be coordinated with 9 CES/CEIE personnel. All Hazardous Waste manifests leaving from any location on Beale AFB must be reviewed/certified/signed by 9 CES/CEIE personnel. Beale AFB generates hazardous wastes primarily as a result of aircraft maintenance, vehicle maintenance, facility maintenance, photograph processing, activities from organizations assigned to Beale AFB, and contract activities.

Pollution Prevention. AFI 32-7001, *Environmental Management*, implements the regulatory mandates in DOD Instruction 4715.17, *Environmental Management System*, and AFD 32-70 and establishes the framework for an Environmental Management System (EMS) within the USAF. Pollution prevention is part of the EMS and is an Environmental Safety and Occupational Health risk reduction strategy for environmental aspects that generate pollutants. Each facility shall use their EMS to identify opportunities to optimize selected business, operational, or industrial processes or activities in terms of pollutant reduction, lower energy use, reduction in the use of natural resources, water conservation, and improvements to health and safety and prepare and implement environmental action plans to achieve these objectives and targets. The 9 CES/CEIE fulfills this requirement with the *Beale Pollution Prevention Management Action Plan* (P2MAP) and the following environmental plans:

- ICP, 2013
- Integrated Solid Waste Management Plan, 2011
- SWPPP, 2011
- HMMP, 2011 (updated in 2012)
- HWMP, 2010.

These plans ensure that Beale AFB maintains a waste-reduction program and meets the requirements of the CWA; NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Storage Tanks. AFI 32-7044, *Storage Tank Compliance*, implements AFD 32-70 and identifies compliance requirements for USTs, ASTs, and associated piping that store petroleum products and hazardous substances. USTs are subject to regulation under RCRA, 42 U.S.C. 6901, and 40 CFR 280.

An inventory of ASTs and USTs is maintained at Beale AFB and includes the location, contents, capacity, containment measures, status, and installation dates (Beale AFB 2009b). Liquid fuels used at Beale AFB are Jet Petroleum-Type 8, JPTS, unleaded gasoline, and diesel fuel. Beale AFB has a total aboveground storage capacity of 2,617,993 gallons and an underground storage capacity of 596,300 gallons (Beale AFB 2013).

Asbestos-Containing Material. Asbestos is regulated by the USEPA under the CAA; Toxic Substances Control Act; and Comprehensive Environmental Response, Compensation, and Liability Act. USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. Friable ACM is any material containing more than 1 percent asbestos, and that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM is any ACM that does not meet the criteria for friable ACM.

AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. It requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities and to document asbestos management efforts. In addition, the instruction requires each installation to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects.

Building materials in older buildings (pre-1980) are assumed to contain asbestos; however, asbestos is still used in some construction materials today. Asbestos exists in a variety of forms and can be found in floor tiles, floor tile mastic, roofing materials, joint compound used between pieces of wallboard, wallboard thermal system insulation, and boiler gaskets. According to the 2008 *Beale General Plan*, water mains on the installation consist of PVC, asbestos cement, cast iron, and steel. Detailed locations of asbestos cement water lines are not available; therefore, the potential for encountering asbestos cement water lines exists when connecting to existing lines and in areas proposed for demolition or renovation. If asbestos is disturbed, fibers can become friable. Common sense measures, such as avoiding damage to walls and pipe insulation, help keep the fibers from becoming airborne and hazardous.

Beale AFB maintains a record of ACM maintenance and abatement. The *Asbestos Management and Operating Plan* specifies procedures for the testing, removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects, and addresses organization roles and responsibilities. In addition, it is designed to protect personnel who live and work on Beale AFB from exposure to airborne asbestos fibers and to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos (Beale AFB 2011g).

Lead-Based Paint. Lead is a heavy, ductile metal commonly found simply as metallic lead or in association with organic compounds, oxides, and salts. It was commonly used in house paint for several years. The Federal government banned the use of most LBP in 1978; therefore, all buildings constructed prior to 1978 are assumed to contain LBP. Federal agencies are required to comply with applicable Federal, state, and local laws related to LBP activities and hazards.

The *Lead-Based Paint Management and Operating Plan* was prepared in accordance with DOD guidance and addresses regulatory requirements, responsibilities, and management activities. The plan is designed to establish management responsibilities and procedures for identifying and controlling hazards related to the presence of LBP. It addresses organizational roles and responsibilities, program development,

management actions, data management, and training (Beale AFB 2007c). LBP maintenance and abatement records are maintained on Beale AFB by the LBP Program Officer.

Based on their age, it is assumed that Buildings 355, 1028, 2459, 5109, 5110, 5111, 5112, 5113, 5114, and 5116 might have LBP concerns (Beale AFB 2011h). Demolition associated with the Base Demolition Plan has the potential to encounter LBP in the soil due to previous development in the area.

Polychlorinated Biphenyls. PCBs are a group of chemical mixtures used as insulators in electrical equipment such as transformers and fluorescent light ballasts. Chemicals classified as PCBs were widely manufactured and used in the United States throughout the 1950s and 1960s. PCBs can be present in products and materials produced before the 1979 ban. Common products that might contain PCBs include electrical equipment (e.g., transformers and capacitors), hydraulic systems, and fluorescent light ballasts.

Beale AFB has eliminated most PCB-containing equipment at the installation; however, some PCB-laden oils could be contained in electrical equipment (e.g., large transformers and capacitors). The Civil Engineering Electric Shop is the primary organization involved with PCBs, and compliance oversight and support is provided by 9 CES/CEIE Toxics Program Manager.

Radon. Radon is a naturally occurring radioactive gas found in soils and rocks. It comes from the natural breakdown or decay of uranium. Radon has the tendency to accumulate in enclosed spaces that are usually below ground and poorly ventilated (e.g., basements). Radon is an odorless, colorless gas that has been determined to increase the risk of developing lung cancer. In general, the risk of lung cancer increases as the level of radon and length of exposure increase. The USEPA has established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences; however, there have been no standards established for commercial structures. Radon gas accumulation greater than 4 pCi/L is considered to represent a health risk to occupants. According to the USEPA Map of Radon Zones, Beale AFB is in an area with a predicted average indoor radon screening level of less than 2 pCi/L (USEPA 2011b).

Pesticides. The *Installation Pest Management Plan for Beale AFB, California*, required by AFI 32-1053, *Integrated Pest Management Program*, describes the pest management practices at the installation. It describes the installation's pest management requirements; outlines the resources necessary for surveillance and control; and describes the administrative, safety, and environmental requirements of the program. The program uses certified Government and contract pest management technicians to control pests. Pests included in the plan are weeds and other unwanted vegetation; termites, mosquitoes, crawling insects (e.g., ants, crickets, cockroaches), and spiders; and mice, rats, and other vertebrate pests (Beale AFB 2010b).

Environmental Restoration Program. The ERP at Beale AFB began in 1984 with an installationwide Preliminary Assessment/Records Search that identified 16 ERP sites for further investigation. Supplemental investigations and assessments brought the total number of Areas of Concern up to 73 and ERP sites to 40. Primary contaminants in the soil and groundwater include fuels, oils, pesticides, herbicides, waste solvents, and inorganic compounds. Progress under the ERP is closely coordinated with various regulatory agencies, including the California Environmental Protection Agency, Department of Toxic Substances Control, and the CRWQCB. As of December 2007, 17 ERP sites are closed and no further action is planned, 4 ERP sites have been submitted for closure, 5 ERP sites are being characterized, 3 ERP sites are under remedial design, and 11 ERP sites are under remediation. **Figure 3-3** depicts the locations of the proposed projects and active ERP sites on Beale AFB.

In support of the USAF MMRP, which was initiated in 2003, a Comprehensive Site Evaluation Phase I was completed at Beale AFB. Sixty-three MMRP sites were identified at Beale AFB. Sixty-one sites are recommended to progress to a Comprehensive Site Evaluation Phase II, one site is ineligible for the MMRP, and one site is recommended for no further action. The Phase II Comprehensive Site Evaluation will include surface geophysical investigations and sampling to characterize these MMRP sites further.

Activities associated with the Proposed Action and alternatives would occur within ERP Sites SD-01, SD-32, SS-39, and ST-22. No MMRP Sites are within or adjacent to the proposed project sites.

ERP Site SD-01 is a storm sewer outfall 800 feet west of the runway. PCBs, polycyclic aromatic hydrocarbons, and TPHs have been found in sediment in the drainage; VOCs have been detected in the groundwater. ERP Site SD-32 is believed to be the source of a plume of groundwater contamination in the Flightline Area. Historically, operations near this site included the assembly of Titan missiles and maintenance of equipment used on B-52 bombers. VOCs have been detected in the soil and groundwater, and are being addressed in coordination with ERP Site SD-32. ERP SS-39 encompasses Building 2145 and the surrounding area. It is the site of former activities that included photo processing, painting, and fabrication. VOCs have been detected in soils and groundwater and PCBs have been detected in Building 2145.

ERP Site ST-22 consists of USTs currently or formerly located on Beale AFB at one time. A comprehensive survey estimated that 1,089 USTs were located at Beale AFB. Approximately 95 percent of the UST locations have received regulatory closure, leaving 66 UST locations scheduled for additional remedial actions. The 14 USTs located within the vicinity of proposed irrigation well sites received regulatory closure in 1996. The remaining locations have active bioventing systems, ongoing groundwater monitoring, access difficulties, or cannot be located. Petroleum hydrocarbons and VOCs have been detected in the soil and groundwater (Beale AFB 2007a).

3.11.3 Environmental Consequences

Impacts on hazardous materials and wastes were assessed by evaluating the degree to which the Proposed Action could cause worker, resident, or visitor exposure to hazardous materials or wastes; whether the Proposed Action would lead to noncompliance with applicable Federal or state regulations or increase the amounts generated or procured beyond current waste management procedures and capacities; and whether the Proposed Action would disturb an ERP site or create or contribute to an ERP site resulting in adverse effects on human health or the environment.

Overall Construction Impacts. Short-term, negligible to minor, adverse impacts on hazardous materials and wastes would be expected from the Proposed Action due to the use of fuels and other hazardous materials by construction equipment, production of hazardous waste from construction activities, and disturbance of active ERP sites in the vicinity of certain projects. All hazardous materials will be handled and disposed of according to the relevant Federal, state, and local regulations, and the relevant installation management plans.

Overall Operational Impacts. Implementation of the Proposed Action would result in beneficial impacts as outdated and deteriorating facilities containing or producing hazardous materials and wastes would be repaired, demolished, or replaced. Implementation of the base demolition plan would result in long-term, beneficial impacts as there would be no continued risk of exposure to ACMs and LBPs in the buildings proposed for demolition.

3.11.3.1 Construct Temporary Lodging Facility

3.11.3.1.1 Proposed Action

Hazardous Materials and Petroleum Products. Short-term, negligible, direct, adverse impacts associated with hazardous materials and petroleum products would be anticipated as a result of this project. Construction activities would result in a short-term increase in the use of hazardous materials and petroleum products. Contractors would be responsible for the management of these materials, which would be handled in accordance with Beale AFB's HMMP and Federal, state, and local regulations. BMPs would be followed to ensure that contamination from a spill would not occur. If, however, a spill were to occur, the ICP outlines the appropriate measures for petroleum, oils and lubricants (POL), spill situations.

Most construction activities do not involve substantial uses of hazardous materials. Hazardous materials used in construction activities include solvents, sealants, adhesives, and welding gases; and POLs to operate equipment.

Hazardous and Petroleum Wastes. The proposed project would result in short-term, minor, direct, adverse impacts on hazardous and petroleum wastes during the construction period. Contractors would be responsible for the handling and disposal of hazardous waste in accordance with Federal and state regulations and the Beale AFB HWMP. Quantities of off-installation transport of hazardous waste would increase during construction activities.

Pollution Prevention. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue and increase during construction. Operations associated with the proposed project would require procurement of products containing hazardous materials, generation of used oil, and consumption of energy consistent with the baseline condition. Adherence with the Beale P2MAP would ensure that pollution prevention goals are met.

Storage Tanks. No impacts on storage tanks are anticipated.

Asbestos-Containing Material. No impacts on ACMs are anticipated.

Lead-Based Paint. The proposed project area is vacant and unimproved and not suspected to contain LBP in the soil. Therefore, no impacts on LBP would be expected within the proposed project area.

Polychlorinated Biphenyls. No impacts associated with PCBs are anticipated from implementation of the Proposed Action.

Radon. No impacts associated with radon are anticipated from implementation of the Proposed Action.

Pesticides. No impacts associated with pesticides would be expected from implementation of the proposed project.

Environmental Restoration Program. The proposed TLF overlaps ERP Site ST-22; therefore, implementation of the Proposed Action in this area could result in short-term, minor, direct, adverse impacts. The increased area of disturbance relative to the Proposed Action, resulting from the construction of the gravel access road, could result in more extensive disturbance of contaminated soils. Personnel working on this project must be informed of the possibility that contaminated groundwater might be encountered. If contamination is encountered during construction activities, it would be

handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations. Groundwater would be tested to ensure it is not contaminated prior to use.

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on hazardous materials and waste management.

3.11.3.1.2 *Alternatives*

No alternatives for the TLF were carried forward for analysis.

3.11.3.1.3 *No Action Alternative*

Under the No Action Alternative, Beale AFB would not construct the TLF. Therefore, no construction or ground disturbance would occur. Hazardous materials and wastes quantities would remain the same.

3.11.3.2 *Replace Bridges 2710 and 2720 on Gavin Mandery Drive*

3.11.3.2.1 *Proposed Action*

Hazardous Materials and Petroleum Products. Short-term, negligible, direct, adverse impacts associated with hazardous materials and petroleum products would be anticipated as a result of this project. Construction activities would result in a short-term increase in the use of hazardous materials and petroleum products. Contractors would be responsible for the management of these materials, which would be handled in accordance with Beale AFB's HMMP and Federal, state, and local regulations. BMPs would be followed to ensure that contamination from a spill would not occur. If, however, a spill were to occur, the ICP outlines the appropriate measures for POL spill situations.

Most construction activities do not involve substantial uses of hazardous materials. Hazardous materials used in construction activities include solvents, sealants, adhesives, and welding gases; and POLs to operate equipment.

Hazardous and Petroleum Wastes. The proposed project would result in short-term, minor, direct, adverse impacts on hazardous and petroleum wastes during the construction period. Contractors would be responsible for the handling and disposal of hazardous waste in accordance with Federal and state regulations and the Beale AFB HWMP. Quantities of off-installation transport of hazardous waste would increase during construction activities.

Pollution Prevention. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue and increase during construction. Operations associated with the proposed project would require procurement of products containing hazardous materials, generation of used oil, and consumption of energy consistent with the baseline condition. Adherence with the Beale P2MAP would ensure that pollution prevention goals are met.

Storage Tanks. Closed USTs associated with ERP Site ST-22 might be encountered by contractors during construction. Therefore, short-term, minor impacts on storage tanks in the vicinity might be anticipated. Contractors would be responsible for the handling and disposal of hazardous waste in accordance with Federal and state regulations and the Beale AFB HWMP.

Asbestos-Containing Material. No impacts on ACMs are expected.

Lead-Based Paint. The proposed project area is vacant and unimproved and not suspected to contain LBP in the soil. Therefore, no impacts on LBP would be expected within the proposed project area.

Polychlorinated Biphenyls. No impacts associated with PCBs would be expected from implementation of the Proposed Action.

Radon. No impacts associated with radon would be expected from implementation of the proposed project.

Pesticides. No impacts associated with pesticides would be expected from implementation of the proposed project.

Environmental Restoration Program. The proposed project could result in short-term, minor, direct, adverse impacts from ERP Site ST-22. Personnel working on this project must be informed of the possibility that contaminated groundwater might be encountered. If contamination is encountered during construction activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations. Groundwater would be tested to ensure it is not contaminated prior to use

Summary. Construction and operational activities associated with the proposed project would not have a significant impact on hazardous materials and waste management.

3.11.3.2.2 Alternatives

Alternative 1. One alternative for the replacement of the Bridges 2710 and 2720 on Gavin Mandery Drive was carried forward for analysis. Alternative 1 would include the construction of a temporary bypass road in addition to bridge replacement. The construction of the bypass road would not result in any additional impacts beyond those described under the Proposed Action.

3.11.3.2.3 No Action Alternative

Under the No Action Alternative, Beale AFB would not replace Bridges 2710 and 2720 on Gavin Mandery Drive. Therefore, no construction or ground disturbance would occur. Hazardous materials and wastes quantities would remain the same.

3.11.3.3 Implement the Base Demolition Plan

3.11.3.3.1 Proposed Action

Building 355.

Hazardous Materials and Petroleum Products. Short-term, minor, direct, adverse impacts associated with hazardous materials and petroleum products would be expected as a result of this project. Demolition activities would result in a short-term increase in the use of hazardous materials and petroleum products. Contractors would be responsible for the management of these materials, which would be handled in accordance with Beale AFB's HMMP and Federal, state, and local regulations. BMPs would be followed to ensure that contamination from a spill would not occur. If, however, a spill were to occur, the ICP outlines the appropriate measures for POL spill situations.

Most demolition activities do not involve substantial uses of hazardous materials. Hazardous materials used in construction activities include solvents, sealants, adhesives, and welding gases; and POLs to operate equipment.

Hazardous and Petroleum Wastes. The proposed project would result in short-term, minor, direct, adverse impacts on hazardous and petroleum wastes during demolition periods. Contractors would be responsible for the handling and disposal of hazardous wastes in accordance with Federal and state regulations and the Beale AFB ICP and HWMP. Quantities of off-installation transport of hazardous waste would increase during demolition activities.

Pollution Prevention. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue and increase during demolition activities. Operations associated with the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition. Adherence with the Beale P2MAP would ensure that pollution prevention goals are met.

Storage Tanks. No impacts on storage tanks are anticipated.

Asbestos-Containing Material. The proposed project would result in short-term, minor, direct, adverse impacts on ACMs during demolition periods. As building 355 was constructed before 1980, sampling for ACM should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the Asbestos Management and Operating Plan and all Federal, state, and local rules and regulations. Any ACM impacted as a result of asbestos-cement water supply lines, which could be encountered when connecting to existing water lines, would be handled in accordance with the Asbestos Management and Operating Plan and all Federal, state, and local rules and regulations.

Long-term, minor, beneficial impacts would be associated with the demolition of Building 355 due to the elimination of older buildings, resulting in a reduced potential for exposure to, and maintenance of, ACM.

Lead-Based Paint. The proposed project would result in short-term, minor, direct, adverse impacts on LBP during demolition periods. Because of its age, Building 355 is assumed to contain LBP. Sampling for LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the LBP Management and Operating Plan and all Federal, state, and local rules and regulations.

Long-term, minor, beneficial impacts would be associated with the demolition of Building 355 due to the elimination of older buildings, resulting in a reduced potential for exposure to, and maintenance of, LBP.

Polychlorinated Biphenyls. The proposed project would result in short-term, minor, direct, adverse impacts from sampling, removal, and disposal of any PCBs during the demolition period. Building 355 could have fluorescent light ballasts containing PCBs. The light fixtures within this facility would be removed prior to demolition and would be handled in accordance with Federal and state regulations and the installation's ICP. Any transformers outside the building would be tested for PCBs prior to altering the utility and treated in accordance with Federal, state, and local regulations. Any PCBs would be disposed of at a hazardous waste disposal facility.

Radon. No impacts associated with radon would be expected from implementation of the proposed project.

Pesticides. No impacts associated with pesticides would be expected from implementation of the proposed project.

Environmental Restoration Program. The proposed project could result in short-term, minor, direct, adverse impacts from ERP Site ST-22. Personnel working on this project must be informed of the possibility that contaminated groundwater might be encountered. If contamination is encountered during construction activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations. Groundwater would be tested to ensure it is not contaminated prior to use.

Building 1028. Demolition of Building 1028 would have similar impacts on hazardous materials and waste management as described for Building 355. Short-term, adverse impacts are anticipated on hazardous materials and petroleum products, hazardous and petroleum wastes, PCBs, ACM, LBP, and pollution prevention from the construction of this segment. Long-term, beneficial impacts on PCBs, ACM, and LBP are anticipated from the demolition. The proposed project could result in short-term, minor, direct, adverse impacts from ERP Sites SD-32 and SD-01 as contaminated soils and groundwater could be exposed by demolition activities.

Building 2459. Demolition of Building 2459 would have similar impacts on hazardous materials and waste management as described for demolition of Building 355. Short-term, adverse impacts are anticipated on hazardous materials and petroleum products, hazardous and petroleum wastes, PCBs, ACM, LBP, and pollution prevention from the construction of this segment. Long-term, beneficial impacts on PCBs, ACM, and LBP are anticipated from the demolition. The proposed project could result in short-term, minor, direct, adverse impacts from ERP Sites ST-22 and SS-39 as contaminated soils and groundwater could be exposed by demolition activities.

Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. Demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116 would have similar impacts on hazardous materials and waste management as described for demolition of Building 355. Short-term, adverse impacts are anticipated on hazardous materials and petroleum products, hazardous and petroleum wastes, PCBs, ACM, LBP, and pollution prevention from the construction of this segment. Long-term, beneficial impacts on PCBs, ACM, and LBP are anticipated from the demolition. The buildings are not adjacent to any active ERP sites; therefore, no impacts on ERP sites are anticipated.

Summary. Demolition activities associated with the proposed project would not have a significant impact on hazardous materials and waste management.

3.11.3.3.2 Alternatives

No alternatives for the Base Demolition Plan were carried forward for analysis.

3.11.3.3.3 No Action Alternative

Under the No Action Alternative, the Base Demolition Plan would not be implemented, and no buildings at Beale AFB would be demolished. Long-term, minor, adverse impacts on LBP, ACMs, and PCBs would be anticipated from the continued use of outdated facilities on Beale AFB. Migration of these contaminants into groundwater over the long term would be a serious concern.

3.11.4 Environmental Protection Measures

Measure 1: Handling and Disposal of Hazardous Materials and Wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with the Beale AFB HMMP; Asbestos Management and Operating Plan; HWMP; LBP Management and Operating Plan; and all Federal, state, and local rules and regulation.

Measure 2: Contamination. If contamination is encountered during construction and demolition activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations. Groundwater would be tested to ensure it is not contaminated prior to use.

Measure 3: Pollution Prevention. Operations associated with the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition. Adherence with the Beale P2MAP would ensure that pollution prevention goals are met.

Measure 4: Asbestos and LBP Mitigation. Sampling for ACM and LBP should occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with the Asbestos and LBP Management and Operating Plans and all Federal, state, and local rules and regulations. Any ACM impacted as a result of asbestos-cement water supply lines, which could be encountered when connecting to existing water lines, would be handled in accordance with the Asbestos Management and Operating Plan and all Federal, state, and local rules and regulations.

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4. Cumulative and Other Effects

4.1 Cumulative Effects

CEQ defines cumulative effects as the “impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative effects resulting from projects that are recently completed, under construction, proposed, or anticipated to be implemented in the reasonably foreseeable future. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects.

This section briefly summarizes past, present, and reasonably foreseeable future projects within the geographic and time scope of the Proposed Action. The past, present, and reasonably foreseeable projects, identified in the following paragraphs, make up the cumulative effects scenario for the Proposed Action. The cumulative effects scenario is then compared to the effects of the five proposed projects on the individual resource areas analyzed in **Section 3** to determine the cumulative effects of each of the five proposed projects. In accordance with CEQ guidance, the current effects of past actions are considered in aggregate as appropriate for each resource area without delving into the historical details of individual past actions.

4.1.1 Projects Identified With the Potential for Cumulative Effects

The following list identifies past, present, and future projects that have been recently completed or are planned at Beale AFB over the next 5 fiscal years (Rolfness 2013):

- Construct Contingency Well Improvements
- Construct Irrigation Wells on Main Base
- Construct Warehouse District
- Consolidate and Upgrade the Air Force Combat Ammunition Center
- Construct Lodging Facility
- Construct Fitness Center
- Construct Consolidated Deployment Facility
- Construct Civil Engineer Complex
- Construct Small Arms Range
- Construct Airfield Lighting Maintenance Facility
- Construct Security Forces Squadron Mobility Storage Yard
- Construct Munitions Storage Area Road
- Construct Distributed Ground System Facility
- Construct Common Mission Control Center
- Construct California Air National Guard Headquarters and Training Facility

- Construct Rapid Engineers Deployable Heavy Operations Repair Squadron Engineers Heavy Equipment Training Area
- Construct Aircraft Corrosion Control Facility
- Repair and Improve Wastewater Treatment Plant
- Construct and Improve Wheatland Gate
- Construct RQ-4 Centralized Operations and Maintenance Facility
- Construct Force Support Complex
- Construct Vehicle Maintenance Facility
- Repair Airfield Drainage
- Repair Beale West and Lakeview Utilities
- Repair Sewer Main Lines Dry Creek Zone
- Repair Airfield Storm Water Drainage
- Repair Bridges 3111, 3112, 3113, and 3114
- Runway Joints Maintenance
- Demolish Communications Facility (Building 800)
- Demolish Army and Air Force Exchange Service Clothing Sales building (Building 2457)
- Demolish Capehart Gas Station (Building 3304)
- Demolish Doolittle, Vassar, and Grass Valley Guard Shacks (Buildings 1299, 3296, and 5775)
- Demolish Old Lox Facility (Building 1006)
- Demolish SR Shelters (Buildings 1055 and 1056)
- Demolish Battery Shop (Building 1088) and Building 1154
- Demolish Building 421 and Sanitary Latrine (Building 1250)
- Demolish and Construct Multiple Houses under the Military Family Housing Privatization
- Demolish and Consolidate Force Support Squadron Warehouse (Building 2153).

A Draft Environmental Impact Report was prepared for the Ostrom Road Quarry project in June 2008 (YCPD 2008). The project is proposed to be constructed on a 315-acre site off Ostrom Road directly south of and adjoining the installation boundary; this is just to the south of Beale AFB's riparian restoration area. The proposed operation would consist of sand and gravel extraction on approximately 175 acres of the property for a period of 20 years, after which time the area would be reclaimed as farmland. Access bridges for the proposed project would cross Dry Creek and Best Slough south of the installation and would adversely affect jurisdictional waters of the United States and riparian vegetation that are present within these channels. These impacts are expected to be less than 0.3 acres and would likely be permitted under a CWA Section 404 Nationwide permit. A formal wetland assessment has not been undertaken for the project, and there could be small areas of potentially jurisdictional wetlands present in the areas where gravel mining would occur.

Several housing developments have been proposed near Beale AFB including the Magnolia Ranch Specific Plan, which would be a mixed-use development with approximately 3,000 to 4,200 dwelling

units southwest of Beale AFB. An Environmental Impact Report will be prepared for this project (YCPD 2013).

4.1.2 Cumulative Effects Analysis

Table 4-1 summarizes the potential cumulative effects on resources from the Proposed Action at Beale AFB, when combined with other past, present, and future activities. No significant impacts on the environment would be anticipated from the proposed actions and their alternatives at Beale AFB in conjunction with past, present, and future activities.

4.2 Unavoidable Adverse Effects

Unavoidable adverse effects would result from implementation of the proposed projects. As discussed in detail in **Section 3**, the proposed projects would result in short-term, adverse effects associated with construction activities, including increased noise, increased air emissions, minor interruptions to traffic flow, use and generation of small amounts of hazardous materials and wastes, and generation of construction and demolition waste. None of these effects would be significant.

Some projects would occur within the 100-year floodplain, though these projects would not be expected to divert flow or alter floodwater volume or velocity. Unavoidable adverse effects on the floodplain associated with infrastructure repair and construction would be short-term and negligible to minor.

Construction of the TLF and demolition plan projects would result in direct and indirect impacts on vernal pools, wetlands, and other waters of the United States. Compensatory mitigation would be implemented for projects impacting vernal pools or wetlands.

4.3 Compatibility of Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

The environmental effects as a result of the three proposed projects would occur entirely within the boundaries of Beale AFB. Construction, demolition, and infrastructure improvement activities associated with the proposed projects would not result in any significant or incompatible land use changes at Beale AFB or off-installation areas. The proposed projects have been sited according to future land use zones. Consequently, construction activities would not be in conflict with future installation land use policies or objectives. The proposed projects would not conflict with any applicable off-installation land use ordinances or designated clear zones.

4.4 Relationship between the Short-Term Use of the Environment and Long-Term Productivity

Short-term uses of the biophysical components of the environment include direct construction-related disturbances and direct impacts associated with an increase in activity that occurs over a period of less than 5 years. Long-term uses of the environment include those impacts occurring over a period of more than 5 years, including permanent resource loss. Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially

Table 4-1. Cumulative Effects on Resource Areas at Beale AFB

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Noise	Dominant noise sources included military aircraft operations and automobile traffic since the establishment of the military installation in the 1940s.	Dominant noise sources include military aircraft operations, including weapons training and aircraft maintenance activities, and automobile traffic.	Short-term noise would occur from construction and demolition. No long-term effects would be expected.	Construction and demolition activities would result in short-term noise level increases in the vicinity. Operation of projects, such as the small arms range, could result in increased long-term noise.	Cumulative construction and demolition activities would not pose a significant increase in noise as it would be localized to each project site. The cumulative noise environment would continue to be affected primarily by military aircraft operations and automobile traffic.
Land Use	Past development practices have extensively modified land use.	Military missions and grazing land uses are present.	Proposed projects would be consistent with land use designations. Building demolition would remove old and outdated facilities, making land available for future mission-related uses, if required.	No deviations from Beale AFB and municipal off-installation general plans are anticipated.	The Proposed Action would not significantly induce further development at Beale AFB or surrounding areas, and would generally comply with installation and off-installation general plans. No significant cumulative effects would occur.
Air Quality	Past actions have resulted in Yuba County being classified as a Federal nonattainment area for PM _{2.5} and a state nonattainment for O ₃ and PM ₁₀ .	Emissions are from aircraft, vehicles, construction activities, and stationary equipment.	Emissions from construction and demolition activities would have short-term, minor, adverse effects on local air quality and negligible effects on regional air quality.	Emissions would be expected during soil removal, site grading, and construction activities. Operation of projects, such as the aircraft corrosion control facility, could result in changes to air permits.	Cumulative effects would not be anticipated to be significant. Yuba County is expected to continue in their current Federal and state attainment status. Actions would likely be <i>de minimis</i> . Effects would not be anticipated to be significant.

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Health and Safety	Historic military training and land uses have resulted in areas that are affected by explosives concerns or environmental contamination.	Ongoing activities include identification and recordation of historic and active ranges and management of areas of contamination.	Short-term, minor, adverse effects would occur due to the potential slight increase in short-term risks associated with construction and demolition activities. Potential adverse effects from performing construction within ERP sites could also occur. There is a possibility of encountering contaminated material and inadvertent discovery of munitions and UXO during construction and demolition activities.	Future projects could result in short-term, adverse effects on construction workers from slight increases in risks associated with construction and demolition activities.	Short-term, adverse effects on construction workers from slight increase in risks associated with construction and demolition activities; and potential discovery of UXO and munitions. However, no long-term cumulative effects would be expected.
Geology and Soils	Past Beale AFB development activity has resulted in soil disturbance and conversion of soils into areas of permanent development.	Modification of soils for development.	Grading, excavating, and recontouring of the soil would result in short-term, minor to moderate, adverse effects; however, implementation of BMPs would minimize long-term effects.	Grading, excavating, and recontouring of the soil would result in further soil disturbance.	Impacts on soils would be permanent, but localized to specific areas of development. Cumulative effects are not anticipated to be significant.

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Water Resources	Surface water quality has been moderately impacted by development and agriculture. Waters of the United States have been impacted from past development, agriculture, and mining.	Minor surface water impairment due to construction activities.	Short-term, minor, adverse effects would be expected from potential erosion and sedimentation from construction and increases in impervious surface area; however, significant, long-term, adverse effects would be prevented by adherence to BMPs and environmental protection measures. Mitigation would be implemented as necessary to offset any potential impact to waters of the United States and wetlands.	Construction activities would increase the potential for sedimentation. There would be minor increases in impervious surface area. No net loss of wetlands or waters of the United States would be expected because of compensatory mitigation, where required due to direct impacts.	Increased impervious area would have negligible impacts on storm water discharges and water quality. Cumulatively, direct impacts on wetlands and waters of the United States would be adverse, but no net loss would be expected due to compensation and preservation measures.
Biological Resources	Habitats of sensitive and common wildlife and plant species have been impacted from development and agriculture use.	Effects on wildlife habitat and plants occur from construction and operations at Beale AFB. Beale AFB manages natural resources in accordance with the INRMP and the SAMP.	Construction and demolition activities could result in minor losses of vegetation and wildlife habitat through direct impacts. There would also be indirect effects on stream habitat. Federally listed species, including vernal pool tadpole shrimp, and vernal pool fairy shrimp could be affected. Mitigation would be implemented as necessary to offset impacts on wetlands and vernal pools.	Construction would result in disturbance of vegetation. Construction and operations would result in direct and indirect, short-term, adverse effects on threatened and endangered species. Some projects would adversely impact vernal pool crustaceans. Demolition projects would increase natural habitats through revegetation.	Construction would result in disturbance of vegetation and wildlife habitat. Construction and operations would result in direct and indirect adverse effects on threatened and endangered species and their habitats. Some projects would adversely impact vernal pool crustaceans and wetlands. However, cumulative effects would not be expected to be significant because of compensation and preservation measures.

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Cultural Resources	Past development and land use activities have likely destroyed or altered unknown artifacts before their significance was known.	Cultural resources are managed according to the installation's ICRMP.	Coordination under Section 106 of NHPA would occur, so construction activities are unlikely to have significant impacts. Consultation is pending with SHPO.	Projects would impact ineligible sites and potentially eligible historic archaeological sites; however, effects are not anticipated to be significant.	Projects would adversely impact ineligible sites and potentially eligible historic archaeological sites. Cumulative effects would not be significant.
Infrastructure	Water supply, sanitary sewer and wastewater, storm drainage, electrical, natural gas, communications, and liquid fuels systems and solid waste management protocols have been well developed on Beale AFB and in the surrounding urban area.	Utilities and infrastructure systems are generally in good working condition, supporting the Beale AFB mission and population. Some systems, such as the overhead electrical distribution system and the sanitary sewer system, are aging and require upgrades.	Short-term, minor to moderate, adverse effects could occur due to service interruptions as infrastructure systems are upgraded, repaired, or replaced.	Future projects would place additional short- and long-term demands on utilities and infrastructure at Beale AFB and generate short- and long-term negligible to minor effects.	Short- and long-term demands could be placed on utilities, service systems, and infrastructure; however, no cumulative effects would be expected
Transportation	Traffic infrastructure has been constructed on the installation to ease traffic circulation.	Traffic infrastructure is maintained as needed on the installation, which can result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities.	Short-term, adverse effects on traffic due to road and lane closures during construction activities, and long-term, beneficial effects from the replacement and repair of aging bridges and parking areas would be expected.	Projects would result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities.	Projects would result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities; however, cumulative effects would not be anticipated to be significant. Long-term, beneficial effects would be expected from improving roadways and bridges and parking areas.

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Hazardous Materials and Wastes	Hazardous wastes and materials, petroleum products, and pesticides have been used, and ACM, LBP, PCBs, ASTs and USTs, ERP sites, and MMRP sites occur at Beale AFB as a result of its historic use as a military installation.	Hazardous materials are stored and used on the installation, and hazardous wastes are generated and stored. ERP and MMRP sites are undergoing remediation efforts and construction projects occur within existing and closed ERP sites.	Short-term, minor, adverse effects would occur from construction activities that use and generate small amounts of hazardous materials and waste. Short-term, minor, adverse effects might occur from construction activities on ERP sites. Short-term, adverse effects from disturbance of ACM and LBP could occur due to demolition activities. Long-term beneficial effects would be expected from the removal of ACM and LBP from older facilities that are being demolished.	Future projects would generate small amounts of hazardous materials and waste and generate short-term, minor, adverse effects. Short-term, minor, adverse effects might occur from construction activities on ERP sites.	There would be temporary increases in the generation of hazardous materials and waste; however, no cumulative effects would be expected. Long-term, beneficial, cumulative effects would be expected from the removal of ACM and LBP from older facilities that are being demolished.

important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that could affect long-term productivity.

The proposed projects would not result in an intensification of land use at Beale AFB or in the surrounding areas. The proposed projects would result in the loss of nonnative grassland vegetation and wetlands and waters of the United States. The loss of grassland habitat is a negligible loss of this habitat type and represents a very small portion of comparable grassland in surrounding areas on Beale AFB; therefore, it would not affect long-term productivity. During the design phase of any projects potentially affecting wetlands and waters of the United States, efforts would be made to avoid these water features. Loss of wetlands and waters of the United States, including vernal pools, would be mitigated as determined necessary at a ratio consistent with the SAMP requirements. Loss of wetlands and waters of the United States could affect long-term productivity; however, with adherence to BMPs and environmental protection measures, including any mitigation determined necessary to offset impacts, significant impacts would be avoided.

The USAF has set a major goal to reduce building footprints and the resources spent maintaining these facilities called the “20/20 by 2020.” The planned demolition activities at Beale AFB would contribute to that goal by removing excess, obsolete, and underused infrastructure capacity and focusing time and funding on maintaining only infrastructure that is needed. This is a long-term benefit for HQ ACC and the USAF.

4.5 Irreversible and Irretrievable Commitment of Resources

An irreversible or irretrievable commitment of resources refers to effects on or losses to resources that cannot be reversed or recovered, even after an activity has ended and facilities have been decommissioned. A commitment of resources is related to use or destruction of nonrenewable resources, and effects that such a loss will have on future generations. For example, if prime farmland is developed there would be a permanent loss of agricultural productivity.

Material Resources. Material resources used for the proposed projects and their alternatives include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure). Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources used for the proposed projects and their alternatives would be irretrievably lost. These include petroleum-based products (e.g., gasoline and diesel) and electricity. During construction and demolition, gasoline and diesel would be used for the operation of construction vehicles. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant effects would be expected.

Landfill Space. The generation of construction and demolition debris and subsequent disposal of that debris in a landfill would be an irretrievable adverse effect. Construction contractors would be expected to recycle at least 40 percent of the debris that is generated. If a greater percentage is recycled, then irretrievable effects on landfills would be reduced. There are numerous rubble landfills and construction and demolition processing facilities that could handle the waste generated. However, any waste that is generated by the Proposed Action that is disposed of in a landfill would be considered an irretrievable loss of that landfill space.

Water and Biological Resources. Implementation of the proposed projects would result in direct impacts on 6.75 acres of grassland vegetation, which is both nonnative and abundant. This would not represent a loss of significant wildlife habitat. The proposed projects would also result in direct impacts on

0.007 acres of vernal pools. Impacts on habitat for federally-listed vernal pool crustaceans would be minimized to offset impacts at a ratio consistent with the SAMP requirements. Beale AFB would be required to provide 0.021 acres of habitat preservation in compliance with established USFWS ratios and in accordance with the INRMP and SAMP; therefore, there would be no net loss of federally-listed vernal pool crustacean habitat.

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6. List of Preparers

This EA has been prepared by HDR under the direction of HQ ACC and the 9 RW at Beale AFB. The individuals who contributed to the preparation of this document are listed as follows.

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APPENDIX A

**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION
FOR ENVIRONMENTAL PLANNING, NATIVE AMERICAN TRIBAL CONSULTATION,
AND PUBLIC INVOLVEMENT CORRESPONDENCE**

The Description of the Proposed Action and Alternatives was made available to the agencies and Native American Tribes listed below for a 30-day public review period on 1 April 2013. The Draft EA and FONSI/FONPA were made available for a 30-day public review period on 28 February 2014. The Notice of Availability for the Draft EA and FONSI/FONPA and responses received during both review periods follow the distribution lists. Responses received were considered during the development of the Final EA and FONSI/FONPA.

Distribution List

Yuba County Planning Department
Attn: Wendy Hartman, Planning Director
915 8th Street, Suite 123,
Marysville, CA 95901

Department of Conservation
Attn: Rebecca Salazar
801 K Street
Sacramento, CA 95814

CA Regional Water Quality Control Board
North Coast Region
Attn: Thomas Howard, Executive Director
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

State of CA Governor's Office of Planning and
Research, State Clearinghouse and Planning
Unit, 1400 Tenth St., P.O. Box 3044,
Sacramento, CA 95812-3044, (916)445-0613

California Office of Historic Preservation
Attn: Edward Carroll
1725 23rd Street, Suite 100
Sacramento, CA 95816

Department of Water Resources
Attn: Nadell Gayou
901 P Street, 2nd Floor
Sacramento, CA 95814

California Department of Fish and Wildlife
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Feather River Air Quality Management District
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Sacramento, CA 95825-1846

U.S. Army Corps of Engineers
Sacramento District
Attn: Nancy Haley
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Native American Tribal Consultation Distribution List

Berry Creek Rancheria of Maidu Indians
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Enterprise Rancheria of Maidu Indians
Ms. Glenda Nelson, Tribal Chairperson
2133 Monte Vista Avenue
Oroville, CA 95966

Mechoopda Indian Tribe of Chico Rancheria (Maidu)
Mr. Steve Santos, Tribal Chairperson
125 Mission Ranch Boulevard
Chico, CA 95926

Mooretown Rancheria of Maidu Indians
Mr. Gary Archuleta, Tribal Chairperson
1 Alverda Drive
Oroville, CA 95966

Native American Heritage Commission
Attn: Julie Bradley
915 Capitol Mall, #364
Sacramento, CA 95814

Sherwood Valley Rancheria of Pomo
Hillary Renick, Tribal Historic Preservation Officer
190 Sherwood Hill Drive
Willits, CA 95490

Shingle Springs Band of Miwok Indians
Mr. Jeff Murray
P.O. Box 1340
Shingle Springs, CA 95682

United Auburn Indian Community
Mr. David Keyser, Tribal Chairperson
10720 Indian Hill Road
Auburn, CA 95603

A Notice of Availability was published in the Marysville *Appeal-Democrat* on 28 February 2014 announcing that the Draft EA was available to the public for a 30-day review period. The Notice of Availability was issued to solicit comments on the Proposed Action and involve the local community in the decisionmaking process.

— Associated Press

PUBLIC NOTICE
United States Air Force

Notice of Availability

Draft Environmental Assessment (EA) Addressing New Construction and Demolition at Beale Air Force Base, California

Headquarters Air Combat Command, in conjunction with Beale AFB, has completed a Draft EA that evaluates the potential effects of implementing three projects including: Construction of a Temporary Lodging Facility, Replacement of Bridges 2710 and 2720 on Gavin Mandery Drive, and Implementation of the Base Demolition Plan.

The analyses considered in detail the potential environmental effects of implementing each of the three proposed projects and their alternatives. The results, as found in the EA, show all three proposed projects and their alternatives would not have a significant adverse impact on the environment, indicating that a Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) would be appropriate. Based on the analysis in the EA, an Environmental Impact Statement would not be required to implement any of the three proposed projects or their alternatives.

The public review period for this EA is 30 days. The EA will be available for review at the Beale AFB Environmental Office at 6601 B Street, Beale AFB, CA 95903 for 30 days from the date of this publication. A copy of the EA is also available for review online at <http://www.beale.af.mil/library/environmental.asp> under "Environmental Notices" named "Environmental Assessment Addressing New Construction and Demolition." Please send comments to and/or request copies of this document by contacting 9 RW Public Affairs by phone at (530) 634-8887, via email at 9RWPA@BEALE.AFMIL, or by mailing a written request to 9 RW Public Affairs, 6000 C Street, Beale AFB, CA 95961.



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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACG)
BEALE AIR FORCE BASE, CALIFORNIA

27 FEB 2014

MEMORANDUM FOR UNITED AUBURN INDIAN COMMUNITY
ATTN: GENE WHITEHOUSE, CHAIRPERSON
10720 Indian Hill Rd
Auburn, CA 95603

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated an Environmental Assessment (EA) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).
2. The EA will address three proposed projects:
 - a. Replacement of Facilities 2710 and 2720, bridges on Gavin Mandery Drive.
 - b. Base Demolition Plan, Buildings 355, 1028 and 2594.
 - c. Demolition of the former Temporary Lodging Facilities (TLF) (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
3. Consultation with the State Historic Preservation Officer (SHPO) has been initiated for these three projects. The Air Force has determined that the TLF and base demolition plans will result in No Historic Properties Affected and that the bridge replacement will have No Adverse Effect on historic properties. Copies of SHPO correspondence pertaining to these projects are attached.
4. There are no known Native American resources located near any of these project sites. Site records of all known Native American Sites on Beale AFB have been provided to Mr. Marcos Guererro, the United Auburn Indian Community (UAIC) Cultural Resources Manager. Construction and demolition workers will be trained to identify any artifacts that may be discovered and to cease work in the area until all necessary protective measures are in place.
5. The UAIC is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

PROUD TO BE....MSGI

5. Please direct any questions or concerns to Mr. Chuck Carroll, (530) 634-2738, charles.carroll@hous.af.mil or fax (530) 634-2845. You may also contact Dr. James Carucci, (707) 424-8625, james.carucci@hous.af.mil, or Mr. James Lang (530) 634-2642, james.lang@hous.af.mil.



GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

3 Attachments:

1. SHPO consultation packet for Bridge Replacement Project
2. SHPO consultation packet for Base Demolition Plan
3. SHPO consultation packet for TLF Demolition

Gene Whitehouse
Chairman

John L. Williams
Vice Chairman

Brenda Adams
Treasurer

Calvin Moman
Council Member

May 20, 2013

Sheri Rolfsness
Department of Air Force
Headquarters 9th Mission Support Group (ACC)
9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

Subject: Early Consultation on a Description of the Proposed Action and Alternatives (DOPAA) for an Environmental Assessment (EA)/ Initial Study Addressing New Construction and Demolition at Beale Air Force Base and Point Arena Air Force Station (AFS), California

Dear Mr. Rolfsness,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and ancestral territory spans into El Dorado, Nevada, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

In order to ascertain whether or not the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that have been, or will be, completed for the project. We also request copies of future environmental documents for the proposed project so that we have the opportunity to comment on potential impacts and proposed mitigation measures related to cultural resources. The UAIC would also like the opportunity to have our tribal monitors accompany you during the field survey. The information gathered will provide us with a better understanding of the project and cultural resources on site and is invaluable for consultation purposes.

The UAIC's preservation committee has identified cultural resources within your project area and in close proximity, and would like to request a site visit to confirm their locations and meet with you regarding this project. Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the aforementioned documents as requested. Please contact Marcos Guerrero, Cultural Resources Manager, at (530) 883-2364 or email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gene Whitehouse,
Chairman

CC: Marcos Guerrero, CRM

Tribal Office 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 FAX (530) 883-2380



SHERWOOD VALLEY RANCHERIA

May 3, 2013

Ms. Sheri Rolfsness
Department of the Air Force
9 CES/CEAO
6451 B Street
Beale Air Force Base, CA 95903-1708

RE: Proposed Action and Alternatives for an Environmental Assessment (EA)/Initial Study (IS) Addressing New Construction and Demolition at Beale Air Force Base and Point Arena Air Force Station, California.

Dear Sheri Rolfsness:

This letter is in response to your letter regarding Beale AFS and Point Arena AFS. We thank you for the chance to engage in early consultation on these two projects.

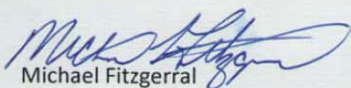
First, we defer to the following tribes for the Beale Air Force Base DOPPA EA/IS: Berry Creek Maidu Tribe, Enterprise Maidu Tribe, and Mooretown Maidu Tribe. Though we promote protection of land, air, water, and cultural resources for future generations, it would be best for you to consult with the Maidu Rancheria's that will be directly impacted by your projects.

Secondly, for the Point Arena Air Force Station DOPAA EA/IS, we respectfully defer to the Manchester – Point Arena Pomo Tribe, as their immediate cultural resources would be affected by your projects.

As in any construction project, repair/replacement of bridges, and demolition plan, we urge your due diligence in ensuring that objective qualified staff and studies are conducted to ensure protections of our ancestral places.

Please keep let us know if you do not receive tribal participation. If you have any further questions or would like to discuss these projects, please call Scarlett Carmona, Tribal Administrator at (707) 459-9690.

Thank You.


Michael Fitzgerrall
Tribal Chairman

190 Sherwood Hill Drive • Willits, California 95490
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State of California -The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



April 26, 2013

Sheri Rolfsness
9 CES/CEAO
6451 B Street
Beale Air Force Base, CA 95903-1708

Subject: Final Description of the Proposed Action and Alternatives for an Environmental Assessment/Initial Study Addressing New Construction and Demolition at Beale Air Force Base and Point Arena Air Force Station (CEQA-2013-0134-0000-R2)

Dear Ms. Rolfsness:

The California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game) is providing comments on the Final Description of the Proposed Action and Alternatives (DOPAA) for an Environmental Assessment/Initial Study (EIR/EIS) Addressing New Construction and Demolition at Beale Air Force Base (AFB) and Point Arena Air Force Station (project) as both a trustee agency and responsible agency under the California Environmental Quality Act (CEQA). As trustee for the State's fish and wildlife resources, the CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species. The CDFW may also be a responsible agency for a project affecting biological resources where we will exercise our discretion after the lead agency to approve or carry out a proposed project or some facet thereof.

Project Location and Description

The project as proposed has five primary components:

- (1) Repair of the Electrical Poles/System in Sensitive Resource Areas project, Beale AFB proposes to replace deteriorating overhead electrical systems in the vicinity of sensitive resource areas such as wetlands and vernal pools;
- (2) For the Construction of the Visitor Quarters Facility and Temporary Lodging Facility project, Beale AFB proposes to construct adequate permanent facilities to provide short-term and temporary housing accommodations for military members and their dependents
- (3) For the repair/replacement of bridges on Gavin Mandery Drive project, Bridge 2710 would be replaced and Bridges 2720, 3111, 3112, 3113, and 3114 would be repaired
- (4) For the implementation of the Sanitary Sewer Optimization Plan project, Beale AFB proposes to update the sanitary sewer system on the eastern portion of the installation; and

Conserving California's Wildlife Since 1870

- (5) Lastly, for the implementation of the Base Demolition Plan, Beale AFB proposes to demolish the buildings on Beale AFB and Point Arena AFS that have reached the end of their useable life and that have been identified as outdated and under-used.

Comments

The Draft EIR/EIS should include a detailed description and complete assessment (including but not limited to type, quantity and locations) of the habitats, flora and fauna of project construction sites, including endangered, threatened, and locally unique species and sensitive habitats. Rare, threatened and endangered species to be addressed should include all those, which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380). The EA/IS shows several figures with sensitive habitats delineated within the project area; however how these habitats were delineated was not disclosed. The tables provided in the EA/IS only provide the area of disturbance for each of the alternatives and not the acreage of impacts to each sensitive resource. Please include information regarding the total number of sensitive habitat acres to be impacted and a discussion of how those impacts will be less than significant.

The Temporary Lodging Facility project is located on a 6.3-acre parcel with sensitive vernal pool resources. The discussion of alternatives does not include finding the least environmentally damaging alternative. The alternatives discussion only addresses areas already slated for development of other projects and dismisses construction of this facility in areas that have already been disturbed including the sites identified for demolition. CDFW recommends that a meaningful evaluation, analysis, and comparison of alternatives' impacts to all five components of the project are provided in the Draft EIR/EIS.

The Draft EIR/EIS analysis should include the reasonably foreseeable direct and indirect changes (temporary and permanent) that may occur with implementation of the proposed project activities (pursuant to CEQA, Section 21065 and CEQA Guidelines, Section 15358). Vernal pools, a rare and sensitive community type, are located within the proposed construction sites. The analysis should address how the project will avoid impacts to this and other sensitive resources in the vicinity. An analysis of the cumulative effects the proposed project activities would have on rare, threatened and endangered aquatic and terrestrial species and sensitive habitats should also be included (pursuant to CEQA Guidelines, Section 15355). The analysis should include impacts to biological resources from all project construction activities including access roads and staging areas.

Riparian Habitat

As a responsible agency under CEQA, the CDFW must rely on the CEQA analysis for the project when exercising our discretion after the lead agency to approve or carry out some facet of a proposed project, such as the issuance of a Lake and Streambed Alteration Agreement (LSA). The proposed project includes replacement and repair of bridges over Dry Creek and its associated riparian habitat as well as sewer lines adjacent to Dry Creek. The riparian habitat has not been delineated on the figures provided in the EA/IS nor has the temporary and permanent loss of riparian habitat

Ms. Rolfsness
April 26, 2013
Page 3 of 3

been quantified for each alternative. As there is no feasible alternative for the repair of existing bridges, the Draft EIR/EIS should also include specific, enforceable measures to be carried out onsite or within the same stream system that will avoid, minimize and/or mitigate for significant project impacts to the natural resources.

Summary

Thank you for considering our concerns regarding the proposed project. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts. If you have questions please contact Angela Calderaro, Staff Environmental Scientist, by e-mail at Angela.Calderaro@wildlife.ca.gov or by phone at (916) 358-2920.

Sincerely,



Tina Bartlett
Regional Manager

ec: Jeff Drongesen
Jennifer Navicky
Angela Calderaro



Central Valley Regional Water Quality Control Board

12 March 2014

Jamie Visinoni
9 CES/CEIE
6601 B Street
Beale AFB, CA 95903

CERTIFIED MAIL
7013 1710 0002 3644 1721

COMMENTS TO REQUEST FOR REVIEW FOR THE DRAFT ENVIRONMENTAL ASSESSMENT, NEW CONSTRUCTION AND DEMOLITION PROJECT, YUBA COUNTY

Pursuant to the Beale Air Force Base's 25 February 2014 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Draft Environmental Assessment* for the New Construction and Demolition Project, located in Yuba County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCCE, EXECUTIVE OFFICER

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley



Phase I and II Municipal Separate Storm Sewer System (MS4) Permits¹

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

¹ Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACOE permit, or any other federal permit, is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements

If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

A handwritten signature in cursive script, appearing to read "Trevor Cleak".

Trevor Cleak
Environmental Scientist

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APPENDIX B
SUMMARY OF AIR EMISSIONS CALCULATIONS

Temporary Lodging Facility -- Annual Emissions

12/10/2013 04:00:33 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\memst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Construct TLF.urb924

Project Name: Beale AFB Irrigation Wells

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (tons/year unmitigated)	0.54	3.44	3.32	0.00	3.90	0.20	4.10	0.82	0.18	1.00	562.12
2014 TOTALS (tons/year mitigated)	0.54	3.44	3.32	0.00	1.23	0.20	1.44	0.26	0.18	0.44	562.12
Percent Reduction	0.00	0.00	0.00	0.00	68.37	0.00	65.03	68.26	0.00	55.70	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014	0.54	3.44	3.32	0.00	3.90	0.20	4.10	0.82	0.18	1.00	562.12
Asphalt 05/01/2014-11/01/2014	0.14	0.86	0.72	0.00	0.00	0.07	0.07	0.00	0.06	0.07	98.39
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.14	0.85	0.58	0.00	0.00	0.07	0.07	0.00	0.06	0.06	83.95
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Paving Worker Trips	0.01	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.49
Building 05/01/2014-11/01/2014	0.24	1.32	1.81	0.00	0.01	0.07	0.08	0.00	0.07	0.07	308.66
Building Off Road Diesel	0.17	0.86	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	107.00

Temporary Lodging Facility -- Annual Emissions

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Building Vendor Trips	0.04	0.41	0.36	0.00	0.00	0.01	0.02	0.00	0.01	0.02	123.89
Building Worker Trips	0.03	0.05	0.80	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.76
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	3.89	0.06	3.95	0.81	0.05	0.87	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	3.89	0.00	3.89	0.81	0.00	0.81	0.00
Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Phase Assumptions

Phase: Fine Grading 5/1/2014 - 11/1/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 7.3

Maximum Daily Acreage Disturbed: 2.95

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 5/1/2014 - 11/1/2014 - Default Paving Description

Acres to be Paved: 1.58

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Temporary Lodging Facility -- Annual Emissions

12/10/2013 04:00:33 PM

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014	0.54	3.44	3.32	0.00	1.23	0.20	1.44	0.26	0.18	0.44	562.12
Asphalt 05/01/2014-11/01/2014	0.14	0.86	0.72	0.00	0.00	0.07	0.07	0.00	0.06	0.07	98.39
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.14	0.85	0.58	0.00	0.00	0.07	0.07	0.00	0.06	0.06	83.95
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
Paving Worker Trips	0.01	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.49
Building 05/01/2014-11/01/2014	0.24	1.32	1.81	0.00	0.01	0.07	0.08	0.00	0.07	0.07	308.66
Building Off Road Diesel	0.17	0.86	0.65	0.00	0.00	0.05	0.05	0.00	0.05	0.05	107.00
Building Vendor Trips	0.04	0.41	0.36	0.00	0.00	0.01	0.02	0.00	0.01	0.02	123.89
Building Worker Trips	0.03	0.05	0.80	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.76
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	1.23	0.06	1.28	0.26	0.05	0.31	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	1.23	0.00	1.23	0.26	0.00	0.26	0.00

Temporary Lodging Facility -- Annual Emissions

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Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2014 - 11/1/2014 - Default Fine Site Grading Description

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

Temporary Lodging Facility -- Daily Emissions

12/10/2013 04:00:23 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\mernst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Construct TLF.urb924

Project Name: Beale AFB Irrigation Wells

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (lbs/day unmitigated)	8.23	52.16	50.23	0.03	59.14	3.04	62.18	12.37	2.79	15.16	8,516.93
2014 TOTALS (lbs/day mitigated)	8.23	52.16	50.23	0.03	18.71	3.04	21.75	3.93	2.79	6.72	8,516.93

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 5/1/2014-10/31/2014 Active	<u>8.23</u>	<u>52.16</u>	<u>50.23</u>	<u>0.03</u>	<u>59.14</u>	<u>3.04</u>	<u>62.18</u>	<u>12.37</u>	<u>2.79</u>	<u>15.16</u>	<u>8,516.93</u>
Days: 132											
Asphalt 05/01/2014-11/01/2014	2.17	13.07	10.97	0.00	0.01	1.07	1.08	0.00	0.98	0.99	1,490.77
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.06	12.89	8.85	0.00	0.00	1.06	1.06	0.00	0.98	0.98	1,272.04
Paving On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.29
Paving Worker Trips	0.08	0.12	2.10	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.45
Building 05/01/2014-11/01/2014	3.61	19.95	27.48	0.03	0.13	1.08	1.21	0.04	0.99	1.03	4,676.62
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.53	6.27	5.49	0.02	0.07	0.23	0.29	0.02	0.21	0.23	1,877.19
Building Worker Trips	0.44	0.71	12.10	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,178.23

Temporary Lodging Facility -- Daily Emissions

12/10/2013 04:00:23 PM

Fine Grading 05/01/2014-11/01/2014	2.45	19.14	11.79	0.00	59.00	0.89	59.89	12.32	0.82	13.14	2,349.54
Fine Grading Dust	0.00	0.00	0.00	0.00	59.00	0.00	59.00	12.32	0.00	12.32	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22

Phase Assumptions

Phase: Fine Grading 5/1/2014 - 11/1/2014 - Default Fine Site Grading Description

Total Acres Disturbed: 7.3

Maximum Daily Acreage Disturbed: 2.95

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 5/1/2014 - 11/1/2014 - Default Paving Description

Acres to be Paved: 1.58

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - Default Building Construction Description

Off-Road Equipment:

Page: 1

Temporary Lodging Facility -- Daily Emissions

12/10/2013 04:00:23 PM

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

Bridge 2710 and 2720 Replacement -- Annual Emissions

12/10/2013 04:06:47 PM

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\memnst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Replace Bridges.urb924

Project Name: Beale AFB Replace Bridges Proposed Action

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (tons/year unmitigated)	0.30	2.30	1.62	0.00	0.41	0.12	0.52	0.09	0.11	0.19	323.91
2014 TOTALS (tons/year mitigated)	0.30	2.30	1.62	0.00	0.34	0.12	0.45	0.07	0.11	0.18	323.91
Percent Reduction	0.00	0.00	0.00	0.00	17.61	0.00	13.72	17.58	0.00	7.83	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014	0.30	2.30	1.62	0.00	0.41	0.12	0.52	0.09	0.11	0.19	323.91
Building 05/01/2014-11/01/2014	0.06	0.46	0.43	0.00	0.00	0.03	0.03	0.00	0.02	0.02	74.21
Building Off Road Diesel	0.06	0.44	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.96
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Building Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.22
Demolition 05/01/2014-11/01/2014	0.07	0.57	0.41	0.00	0.31	0.03	0.35	0.07	0.03	0.10	94.63
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.06	0.39	0.29	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.22

Bridge 2710 and 2720 Replacement -- Annual Emissions

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Demo On Road Diesel	0.01	0.18	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	41.66
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	0.09	0.06	0.15	0.02	0.05	0.07	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.02	0.00	0.02	0.00
Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Phase Assumptions

Phase: Demolition 5/1/2014 - 11/1/2014 - 2014 Demolition

Building Volume Total (cubic feet): 112896

Building Volume Daily (cubic feet): 11289.6

On Road Truck Travel (VMT): 156.8

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

Total Acres Disturbed: 0.65

Maximum Daily Acreage Disturbed: 0.07

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - 2014 Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014	0.30	2.30	1.62	0.00	0.34	0.12	0.45	0.07	0.11	0.18	323.91
Building 05/01/2014-11/01/2014	0.06	0.46	0.43	0.00	0.00	0.03	0.03	0.00	0.02	0.02	74.21
Building Off Road Diesel	0.06	0.44	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.96
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Building Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.22
Demolition 05/01/2014-11/01/2014	0.07	0.57	0.41	0.00	0.31	0.03	0.35	0.07	0.03	0.10	94.63
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.06	0.39	0.29	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.22
Demo On Road Diesel	0.01	0.18	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	41.66
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	0.02	0.06	0.08	0.00	0.05	0.06	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Bridge 2710 and 2720 Replacement -- Annual Emissions

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Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

Bridge 2710 and 2720 Replacement -- Daily Emissions

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\mernst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Replace Bridges.urb924

Project Name: Beale AFB Replace Bridges Proposed Action

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (lbs/day unmitigated)	4.48	34.78	24.51	0.01	6.18	1.75	7.94	1.29	1.61	2.91	4,907.67
2014 TOTALS (lbs/day mitigated)	4.48	34.78	24.51	0.01	5.10	1.75	6.85	1.07	1.61	2.68	4,907.67

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 5/1/2014-10/31/2014 Active Days: 132	4.48	34.78	24.51	0.01	6.18	1.75	7.94	1.29	1.61	2.91	4,907.67
Building 05/01/2014-11/01/2014	0.97	6.95	6.45	0.00	0.01	0.38	0.39	0.00	0.35	0.35	1,124.33
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.14	0.15	0.00	0.00	0.01	0.01	0.00	0.00	0.01	45.73
Building Worker Trips	0.07	0.11	1.90	0.00	0.01	0.00	0.01	0.00	0.00	0.01	185.21
Demolition 05/01/2014-11/01/2014	1.07	8.69	6.28	0.01	4.77	0.49	5.25	1.00	0.45	1.44	1,433.80
Fugitive Dust	0.00	0.00	0.00	0.00	4.74	0.00	4.74	0.99	0.00	0.99	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30

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Bridge 2710 and 2720 Replacement -- Daily Emissions

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Demo On Road Diesel	0.19	2.68	0.89	0.01	0.02	0.09	0.12	0.01	0.09	0.09	631.28
Demo Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22
Fine Grading 05/01/2014-11/01/2014	2.45	19.14	11.79	0.00	1.40	0.89	2.29	0.29	0.82	1.11	2,349.54
Fine Grading Dust	0.00	0.00	0.00	0.00	1.40	0.00	1.40	0.29	0.00	0.29	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22

Phase Assumptions

Phase: Demolition 5/1/2014 - 11/1/2014 - 2014 Demolition

Building Volume Total (cubic feet): 112896

Building Volume Daily (cubic feet): 11289.6

On Road Truck Travel (VMT): 156.8

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

Total Acres Disturbed: 0.65

Maximum Daily Acreage Disturbed: 0.07

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - 2014 Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 5/1/2014-10/31/2014 Active Days: 132	<u>4.48</u>	<u>34.78</u>	<u>24.51</u>	<u>0.01</u>	<u>5.10</u>	<u>1.75</u>	<u>6.85</u>	<u>1.07</u>	<u>1.61</u>	<u>2.68</u>	<u>4,907.67</u>
Building 05/01/2014-11/01/2014	0.97	6.95	6.45	0.00	0.01	0.38	0.39	0.00	0.35	0.35	1,124.33
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.14	0.15	0.00	0.00	0.01	0.01	0.00	0.00	0.01	45.73
Building Worker Trips	0.07	0.11	1.90	0.00	0.01	0.00	0.01	0.00	0.00	0.01	185.21
Demolition 05/01/2014-11/01/2014	1.07	8.69	6.28	0.01	4.77	0.49	5.25	1.00	0.45	1.44	1,433.80
Fugitive Dust	0.00	0.00	0.00	0.00	4.74	0.00	4.74	0.99	0.00	0.99	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.19	2.68	0.89	0.01	0.02	0.09	0.12	0.01	0.09	0.09	631.28
Demo Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22
Fine Grading 05/01/2014-11/01/2014	2.45	19.14	11.79	0.00	0.32	0.89	1.20	0.07	0.82	0.88	2,349.54
Fine Grading Dust	0.00	0.00	0.00	0.00	0.31	0.00	0.31	0.06	0.00	0.06	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Bridge 2710 and 2720 Replacement -- Daily Emissions

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Fine Grading Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Annual Emissions

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\memnst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Replace Bridges.urb924

Project Name: Beale AFB Replace Bridges Alt 1

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (tons/year unmitigated)	0.30	2.30	1.62	0.00	0.49	0.12	0.60	0.10	0.11	0.21	323.91
2014 TOTALS (tons/year mitigated)	0.30	2.30	1.62	0.00	0.35	0.12	0.47	0.07	0.11	0.18	323.91
Percent Reduction	0.00	0.00	0.00	0.00	27.38	0.00	22.13	27.35	0.00	13.38	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014	0.30	2.30	1.62	0.00	0.49	0.12	0.60	0.10	0.11	0.21	323.91
Building 05/01/2014-11/01/2014	0.06	0.46	0.43	0.00	0.00	0.03	0.03	0.00	0.02	0.02	74.21
Building Off Road Diesel	0.06	0.44	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.96
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Building Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.22
Demolition 05/01/2014-11/01/2014	0.07	0.57	0.41	0.00	0.31	0.03	0.35	0.07	0.03	0.10	94.63
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.06	0.39	0.29	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.22

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Annual Emissions

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Demo On Road Diesel	0.01	0.18	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	41.66
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	0.17	0.06	0.23	0.04	0.05	0.09	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Phase Assumptions

Phase: Demolition 5/1/2014 - 11/1/2014 - 2014 Demolition

Building Volume Total (cubic feet): 112896

Building Volume Daily (cubic feet): 11289.6

On Road Truck Travel (VMT): 156.8

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

Total Acres Disturbed: 1.29

Maximum Daily Acreage Disturbed: 0.13

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - 2014 Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014	0.30	2.30	1.62	0.00	0.35	0.12	0.47	0.07	0.11	0.18	323.91
Building 05/01/2014-11/01/2014	0.06	0.46	0.43	0.00	0.00	0.03	0.03	0.00	0.02	0.02	74.21
Building Off Road Diesel	0.06	0.44	0.29	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.96
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
Building Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.22
Demolition 05/01/2014-11/01/2014	0.07	0.57	0.41	0.00	0.31	0.03	0.35	0.07	0.03	0.10	94.63
Fugitive Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.06	0.39	0.29	0.00	0.00	0.03	0.03	0.00	0.02	0.02	46.22
Demo On Road Diesel	0.01	0.18	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	41.66
Demo Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75
Fine Grading 05/01/2014-11/01/2014	0.16	1.26	0.78	0.00	0.04	0.06	0.10	0.01	0.05	0.06	155.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.16	1.26	0.71	0.00	0.00	0.06	0.06	0.00	0.05	0.05	148.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Annual Emissions

12/10/2013 04:05:20 PM

Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Daily Emissions

12/10/2013 04:05:08 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\mernst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Replace Bridges.urb924

Project Name: Beale AFB Replace Bridges Alt 1

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2014 TOTALS (lbs/day unmitigated)	4.48	34.78	24.51	0.01	7.38	1.75	9.14	1.54	1.61	3.16	4,907.67
2014 TOTALS (lbs/day mitigated)	4.48	34.78	24.51	0.01	5.36	1.75	7.12	1.12	1.61	2.73	4,907.67

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 5/1/2014-10/31/2014 Active Days: 132	<u>4.48</u>	<u>34.78</u>	<u>24.51</u>	<u>0.01</u>	<u>7.38</u>	<u>1.75</u>	<u>9.14</u>	<u>1.54</u>	<u>1.61</u>	<u>3.16</u>	<u>4,907.67</u>
Building 05/01/2014-11/01/2014	0.97	6.95	6.45	0.00	0.01	0.38	0.39	0.00	0.35	0.35	1,124.33
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.14	0.15	0.00	0.00	0.01	0.01	0.00	0.00	0.01	45.73
Building Worker Trips	0.07	0.11	1.90	0.00	0.01	0.00	0.01	0.00	0.00	0.01	185.21
Demolition 05/01/2014-11/01/2014	1.07	8.69	6.28	0.01	4.77	0.49	5.25	1.00	0.45	1.44	1,433.80
Fugitive Dust	0.00	0.00	0.00	0.00	4.74	0.00	4.74	0.99	0.00	0.99	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Daily Emissions

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Demo On Road Diesel	0.19	2.68	0.89	0.01	0.02	0.09	0.12	0.01	0.09	0.09	631.28
Demo Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22
Fine Grading 05/01/2014-11/01/2014	2.45	19.14	11.79	0.00	2.60	0.89	3.49	0.54	0.82	1.36	2,349.54
Fine Grading Dust	0.00	0.00	0.00	0.00	2.60	0.00	2.60	0.54	0.00	0.54	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22

Phase Assumptions

Phase: Demolition 5/1/2014 - 11/1/2014 - 2014 Demolition

Building Volume Total (cubic feet): 112896

Building Volume Daily (cubic feet): 11289.6

On Road Truck Travel (VMT): 156.8

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

Total Acres Disturbed: 1.29

Maximum Daily Acreage Disturbed: 0.13

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

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1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 5/1/2014 - 11/1/2014 - 2014 Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 5/1/2014-10/31/2014 Active Days: 132	<u>4.48</u>	<u>34.78</u>	<u>24.51</u>	<u>0.01</u>	<u>5.36</u>	<u>1.75</u>	<u>7.12</u>	<u>1.12</u>	<u>1.61</u>	<u>2.73</u>	<u>4,907.67</u>
Building 05/01/2014-11/01/2014	0.97	6.95	6.45	0.00	0.01	0.38	0.39	0.00	0.35	0.35	1,124.33
Building Off Road Diesel	0.88	6.70	4.39	0.00	0.00	0.37	0.37	0.00	0.34	0.34	893.39
Building Vendor Trips	0.01	0.14	0.15	0.00	0.00	0.01	0.01	0.00	0.00	0.01	45.73
Building Worker Trips	0.07	0.11	1.90	0.00	0.01	0.00	0.01	0.00	0.00	0.01	185.21
Demolition 05/01/2014-11/01/2014	1.07	8.69	6.28	0.01	4.77	0.49	5.25	1.00	0.45	1.44	1,433.80
Fugitive Dust	0.00	0.00	0.00	0.00	4.74	0.00	4.74	0.99	0.00	0.99	0.00
Demo Off Road Diesel	0.84	5.95	4.33	0.00	0.00	0.39	0.39	0.00	0.36	0.36	700.30
Demo On Road Diesel	0.19	2.68	0.89	0.01	0.02	0.09	0.12	0.01	0.09	0.09	631.28
Demo Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22
Fine Grading 05/01/2014-11/01/2014	2.45	19.14	11.79	0.00	0.58	0.89	1.47	0.12	0.82	0.94	2,349.54
Fine Grading Dust	0.00	0.00	0.00	0.00	0.58	0.00	0.58	0.12	0.00	0.12	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Bridge 2710 and 2720 Replacement -- Alternative 1 -- Daily Emissions

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Fine Grading Worker Trips	0.04	0.06	1.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.22

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2014 - 11/1/2014 - 2014 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

Base Demolition Plan -- Annual Emissions

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\memnst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Demolish Buildings.urb924

Project Name: Beale AFB Demolish Building

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2015 TOTALS (tons/year unmitigated)	0.24	1.97	1.24	0.00	1.61	0.09	1.71	0.34	0.08	0.42	330.08
2015 TOTALS (tons/year mitigated)	0.24	1.97	1.24	0.00	1.08	0.09	1.18	0.23	0.08	0.31	330.08
Percent Reduction	0.00	0.00	0.00	0.00	32.81	0.00	31.04	32.83	0.00	26.22	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2015	0.24	1.97	1.24	0.00	1.61	0.09	1.71	0.34	0.08	0.42	330.08
Demolition 05/01/2015-11/01/2015	0.09	0.82	0.50	0.00	0.93	0.04	0.97	0.19	0.04	0.23	176.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.05	0.36	0.28	0.00	0.00	0.02	0.02	0.00	0.02	0.02	45.87
Demo On Road Diesel	0.03	0.45	0.16	0.00	0.00	0.02	0.02	0.00	0.01	0.02	123.61
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.70
Fine Grading 05/01/2015-11/01/2015	0.15	1.15	0.74	0.00	0.68	0.05	0.73	0.14	0.05	0.19	153.90

Base Demolition Plan -- Annual Emissions

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Fine Grading Dust	0.00	0.00	0.00	0.00	0.68	0.00	0.68	0.14	0.00	0.14	0.00
Fine Grading Off Road Diesel	0.15	1.15	0.68	0.00	0.00	0.05	0.05	0.00	0.05	0.05	147.20
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.70

Phase Assumptions

Phase: Demolition 5/1/2015 - 11/1/2015 - 2015 Demolition

Building Volume Total (cubic feet): 337500

Building Volume Daily (cubic feet): 33750

On Road Truck Travel (VMT): 468.75

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2015 - 11/1/2015 - 2015 Grading

Total Acres Disturbed: 5.45 acres

Maximum Daily Acreage Disturbed: 0.52

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Construction Mitigated Detail Report:

Base Demolition Plan -- Annual Emissions

12/10/2013 03:54:43 PM

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2015	0.24	1.97	1.24	0.00	1.08	0.09	1.18	0.23	0.08	0.31	330.08
Demolition 05/01/2015-11/01/2015	0.09	0.82	0.50	0.00	0.93	0.04	0.97	0.19	0.04	0.23	176.18
Fugitive Dust	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.05	0.36	0.28	0.00	0.00	0.02	0.02	0.00	0.02	0.02	45.87
Demo On Road Diesel	0.03	0.45	0.16	0.00	0.00	0.02	0.02	0.00	0.01	0.02	123.61
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.70
Fine Grading 05/01/2015-11/01/2015	0.15	1.15	0.74	0.00	0.15	0.05	0.20	0.03	0.05	0.08	153.90
Fine Grading Dust	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.03	0.00	0.03	0.00
Fine Grading Off Road Diesel	0.15	1.15	0.68	0.00	0.00	0.05	0.05	0.00	0.05	0.05	147.20
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.70

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2015 - 11/1/2015 - 2015 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

Base Demolition Plan -- Daily Emissions

12/10/2013 03:55:12 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\mernst\AppData\Roaming\Urbemis\Version9a\Projects\Beale AFB Demolish Buildings.urb924

Project Name: Beale AFB Demolish Building

Project Location: Feather River AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
2015 TOTALS (lbs/day unmitigated)	3.61	30.05	18.93	0.02	24.65	1.41	26.06	5.15	1.30	6.44	5,039.37
2015 TOTALS (lbs/day mitigated)	3.61	30.05	18.93	0.02	16.56	1.41	17.97	3.46	1.30	4.75	5,039.37

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10 Total</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5 Total</u>	<u>CO2</u>
Time Slice 5/1/2015-10/30/2015 Active Days: 131	<u>3.61</u>	<u>30.05</u>	<u>18.93</u>	<u>0.02</u>	<u>24.65</u>	<u>1.41</u>	<u>26.06</u>	<u>5.15</u>	<u>1.30</u>	<u>6.44</u>	<u>5,039.37</u>
Demolition 05/01/2015-11/01/2015	1.32	12.49	7.58	0.02	14.25	0.60	14.84	2.97	0.55	3.52	2,689.77
Fugitive Dust	0.00	0.00	0.00	0.00	14.18	0.00	14.18	2.95	0.00	2.95	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.50	6.95	2.38	0.02	0.07	0.24	0.31	0.02	0.22	0.24	1,887.19
Demo Worker Trips	0.03	0.06	0.95	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.28
Fine Grading 05/01/2015-11/01/2015	2.29	17.56	11.35	0.00	10.40	0.81	11.22	2.17	0.75	2.92	2,349.60
Fine Grading Dust	0.00	0.00	0.00	0.00	10.40	0.00	10.40	2.17	0.00	2.17	0.00

Base Demolition Plan -- Daily Emissions

12/10/2013 03:55:12 PM

Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.06	0.95	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.28

Phase Assumptions

Phase: Demolition 5/1/2015 - 11/1/2015 - 2015 Demolition

Building Volume Total (cubic feet): 337500

Building Volume Daily (cubic feet): 33750

On Road Truck Travel (VMT): 468.75

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 5/1/2015 - 11/1/2015 - 2015 Grading

Total Acres Disturbed: 5.45 acres

Maximum Daily Acreage Disturbed: 0.52

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Base Demolition Plan -- Daily Emissions

12/10/2013 03:55:12 PM

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 5/1/2015-10/30/2015 Active Days: 131	<u>3.61</u>	<u>30.05</u>	<u>18.93</u>	<u>0.02</u>	<u>16.56</u>	<u>1.41</u>	<u>17.97</u>	<u>3.46</u>	<u>1.30</u>	<u>4.75</u>	<u>5,039.37</u>
Demolition 05/01/2015-11/01/2015	1.32	12.49	7.58	0.02	14.25	0.60	14.84	2.97	0.55	3.52	2,689.77
Fugitive Dust	0.00	0.00	0.00	0.00	14.18	0.00	14.18	2.95	0.00	2.95	0.00
Demo Off Road Diesel	0.79	5.49	4.25	0.00	0.00	0.35	0.35	0.00	0.33	0.33	700.30
Demo On Road Diesel	0.50	6.95	2.38	0.02	0.07	0.24	0.31	0.02	0.22	0.24	1,887.19
Demo Worker Trips	0.03	0.06	0.95	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.28
Fine Grading 05/01/2015- 11/01/2015	2.29	17.56	11.35	0.00	2.32	0.81	3.13	0.48	0.75	1.23	2,349.60
Fine Grading Dust	0.00	0.00	0.00	0.00	2.31	0.00	2.31	0.48	0.00	0.48	0.00
Fine Grading Off Road Diesel	2.26	17.50	10.40	0.00	0.00	0.81	0.81	0.00	0.74	0.74	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.06	0.95	0.00	0.00	0.00	0.01	0.00	0.00	0.00	102.28

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2015 - 11/1/2015 - 2015 Grading

For Soil Stabilizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stabilizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

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APPENDIX C

**DOCUMENTATION OF NRHP ELIGIBILITY EVALUATIONS, SHPO CONCURRENCE,
AND MEMORANDUMS OF AGREEMENT FOR THE PROPOSED ACTION**



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACG)
BEALE AIR FORCE BASE, CALIFORNIA

15 AUG 2013

MEMORANDUM FOR STATE HISTORIC PROPERTY OFFICER

ATTN: DR. CAROL ROWLAND-NAWI

Department of Parks and Recreation

Office of Historic Preservation

1725 23d Street, Suite 100

Sacramento, CA 95816

FROM: 9 CES/CD

6601 B Street

Beale AFB, CA 95903-1708

SUBJECT: Construction of Temporary Lodging Facility – Beale AFB

1. In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Beale Air Force Base (BAFB), is advising you of a proposed undertaking that has the potential to affect historic properties. The undertaking is the “Construction of a Temporary Lodging Facility” at BAFB, in Yuba County (Atch 1). This consultation combines a discussion of the Area of Potential Effect (APE) for the undertaking (per 36 CFR 800.4) with our finding of No Historic Properties Affected. Our finding is based on the facts of this undertaking and data from archaeological field surveys, other technical surveys, and a recent pedestrian examination of the project area.

2. Beale Air Force Base is situated on the eastern margin of the Sacramento Valley, about 35 miles north-northeast of Sacramento. The base, more than 23,000 acres in size, is located in the Southern Maidu (Nisenan) culture area. Beale is home to the 9th Reconnaissance Wing, which maintains fleets of manned and unmanned surveillance aircraft. The base population includes more than 4,500 military persons, and many of them live in permanent housing on the installation. Temporary Lodging Facilities, or “TLF” are also needed for transient officers, families, or unaccompanied/enlisted personnel.

3. In accordance with 36 CFR Section 800.4(a)(1), the Area of Potential Effects is described below.

a) The APE is 6.3 acres (2.55 hectares), and is roughly rectangular in shape (Atch 2). The long axis is oriented northwest - southeast, and measures about 180 meters; the shorter northeast - southwest dimension is about 145 meters. This parcel is within the highly developed central area of Beale AFB, located west of C Street, between 24th Street and Robert Nicoletti Way. Real property records and aerial photographs (Atch 3) indicate that the area had been used for various purposes in the past. Only an asphalt parking lot remains, adjacent to C Street, and an asphalt jogging trail crosses through the center of the parcel and around the northwest end, looping to the north (Atch 4).

b) Overall, the ground surface slopes gently from C Street, down to the northwest and the drainage features just beyond the project boundary. Topographic maps and the engineering plans for the project indicate that the difference in elevation from C Street on the southeast, to the far end of the project area to the northwest is about 1 to 2 meters. The wetland and swales beyond the project area drain towards the west and north into Hutchinson Creek, a natural feature that is oriented north - south. Geotechnical studies indicate that the soils in the project area are sandy silty clays, fairly hard-packed and

difficult to drill through. The ground surface is slightly undulating or uneven and appears to be disturbed. The soil engineers noted in their report that there is some evidence that the topsoil had been removed in the project area, leaving interbedded layers of lean clay and silt. The flora present also suggests the area has been disturbed: there are only weeds, grasses, and a few low shrubs growing outside of the swales and drainages.

c) The Project APE is bounded on the southeast by C Street and by the swale and wetland feature on the northwest. Drainage ditches mark the APE boundary on the other two sides, to the southwest and the northeast (Atch 5). All excavations and construction will occur within the roughly rectangular APE shown in the Attachments. The Areas of Direct Impact (ADIs) are more limited, within the APE, and correspond to the footings of the four buildings as well as the areas within the APE where grading and construction will be needed to place new parking areas, sidewalks, and other civil improvements.

4. In accordance with NHPA Section 800.11(d)(1), the undertaking is described below.

a) Attachment 4 offers a schematic overview of the undertaking. The attachment notes the "limit of construction" on the northwest end, which corresponds to the APE boundary in that area. The ditches on the sides and C Street to the southeast mark the other APE boundaries. In total, 34 living units will be constructed within four buildings, which will be single-story structures designed to appear similar to existing nearby facilities. A central courtyard, sidewalks and parking areas will also be constructed. The buildings will use slab foundations with perimeter footings.

b) To create a roughly level area for the complex, the northwest end of the APE will be raised about one meter. Once the area is leveled and compacted, perimeter foundations extending 24 inches deep will be excavated for each building. Floors will be slab-on-grade concrete, poured over subgrade preparation and compacted crushed gravel, totaling 18 inches thick. If fill materials are needed (e.g., crushed gravel, compactable clay soil, topsoil), they will be borrowed from off-base locations or from approved borrow areas on base. If on-base borrow materials are used, no expansions to the borrow sites or impacts to historic properties are anticipated. If BAFB determines that any borrow activities may impact known or potential historic properties, the Air Force will reopen this consultation and seek comments from the California State Historic Preservation Officer (SHPO).

c) Constructed "bioswales" and landscaping is included in this project. The bioswales will be shallow, linear features planted with native grasses and shrubs. The swales will be trenches three to four feet wide and about 10 inches deep. Throughout the complex, newly planted trees and some shrubs will require 6-foot diameter holes 3 to 4 feet deep, with central drainage boreholes 10 inches in diameter and 8 feet deep. Concrete foundations for lighting poles and similar features will require 2-foot diameter holes up to 6 feet deep. Sidewalks and automobile parking areas will require relatively shallow subgrade preparations and compacted fill up to 2 feet thick.

d) Staging of equipment and construction materials will be restricted to existing asphalted parking areas and roadways; staging will have no potential to damage historic properties. Utilities are available along C Street directly adjacent to the project area, so only minimal excavations will be needed to connect existing utility services to the new facilities.

5. In accordance with 36 CFR Section 800.11(d)(2), identification of historic properties is below.

a) Two previous surveys (Atch 6) have covered all or part of the project APE. In 1996 Eidsness completed a survey in the area. Also, in 1982, a survey by Weddell covered a portion of the APE. Neither of these efforts identified significant historic properties anywhere near the project location. The

only known historic property in the vicinity is site "AH-21", which is about 400 meters northwest of the project APE. The Department of Parks and Recreation record forms for AH-21 are included with this consult letter (Atch 7). AH-21 is a locus of historic features, artifacts, and refuse, and probably represents a field camp or recreation site. Extant features appear to be a furnace or bar-be-que, a cross-shaped foundation, and the remains of a fountain or something similar.

b) Recently, the BAFB Cultural Resource Manager (CRM) and the regional archaeologist for Air Force installations in California visited the project area (see Atch 4). Grassy ground cover was quite extensive, and surface visibility was only about 5 percent. However, small patches of bare ground were present, and examination of these near the running track, around animal mounds and burrows, and in other areas found no evidence of historic or prehistoric archaeological deposits. And finally, common practice at Beale is to re-survey project areas prior to construction, if possible. In the case of the TLF undertaking, an archaeological field survey is programmed to occur within a month or two. While it is unlikely that positive evidence of archaeological deposits will be identified in the APE, if anything is found, BAFB CRM staff will immediately re-open consultation with the SHPO and report all pertinent findings.

6. In accordance with 36 CFR Section 800.4(b), other historic property identification efforts are described below.

a) Additional information about the project location is available from a Ground Penetrating Radar (GPR) study and a geotechnical soil boring study. The GPR study was completed to identify subsurface soil structures associated with wetlands and vernal pools. The GPR study personnel also noted that,

"Field observations found the project site to have considerable disturbance of the surface landscape due to past land uses... There was evidence of previous construction activities and placement of construction materials throughout the site including concrete, asphalt, cobbles, and pipes. The site also included two separate pole lines [utility or power poles] which are associated with substantial disturbance to the surface topography. In general, the project site had an uneven surface with several drainages that were constructed."

b) Findings from the GPR study identified two true vernal pools, and large areas that lacked subsurface hardpan clay soils that tend to promote the formation and maintenance of such wetland features. In the summary, the GPR report notes that one explanation for the kinds of soils and depth of soil features found on the project site is that "the surface soil above the claypan may have been removed..."

c) The geotechnical study retrieved soil samples from eight borings. Seven of the borings were placed throughout the grassy area of the project, and the eighth was drilled through the existing asphalt parking lot. The 8-inch diameter soil bores reached depths of 11 to 21.5 feet below surface, and most near-surface soils throughout the sampled area were the same, showing "interbedded layers of lean clay and silt with various amounts of sand and gravel." It is assumed that both the soil boring study and the GPR effort would have noted signs of prehistoric cultural activity (pit features seen in the GPR, or charcoal or lithic debitage recovered in the soil samples from depth), but neither document reports any such evidence.

d) The Asset Management staff at Beale Air Force Base is committed to creating and maintaining a viable, robust Native American consultation program. To date, BAFB has received no information that suggests the proposed project area is within a Traditional Cultural Property (TCP), a resource gathering area, or holds any other importance to Native Americans.

e) In the past, BAFB environmental planners and CRM personnel have extended numerous invitations to consult, to many different Native tribes and organizations. These efforts continue, and CRM staff has been meeting with interested Native Americans about this undertaking and other projects planned for the base. While BAFB has determined that this undertaking will have no effect on historic properties, some Native Americans still may have an interest in monitoring construction activities. Representatives of interested groups or tribes will be invited to monitor the project if they wish.

7. 36 CFR Section 800.11(d)(3) requires a "Determination of No Historic Properties Affected." There is only one known archaeological site in the vicinity of the proposed project, and it is about 400 meters to the northwest (Atch 7). There is no evidence of any buried prehistoric or historic deposits in the project area. In addition, there are no historic districts or defined visual resources in the area, and there are no known TCPs, resource gathering areas, or other Native American concerns.

8. A summary of Beale AFB's conclusions is provided below.

a) The US Air Force, Beale Air Force Base, proposes the construction of a new Temporary Lodging Facility, to be located within the developed area at BAFB. Multiple surveys have shown that no historic properties exist in the area. GPR surveys to identify soil types associated with wetland features, and soil borings to determine foundation bearing characteristics confirmed that the area appears to be heavily disturbed and the soils are layered dense clays and silts showing no evidence of anthropogenic activities. These facts indicate that there is very little chance that any historic properties will be encountered during project construction. However, if unanticipated discoveries are made, Beale CRM personnel will reopen consultation with the SHPO and other interested parties, per the requirements of 36 CFR Part 800.

b) Based on the preceding, BAFB requests SHPO concur with our delineation of the APE for this undertaking, and with our finding of No Historic Properties Affected for "Construction of a Temporary Lodging Facility" at Beale Air Force Base. If you have questions about the undertaking described in this letter, please contact the BAFB CRM, Mr. Charles Carroll, at (530) 634-2738, charles.carroll@beale.af.mil, fax (530) 634-2845. You may also phone or email Ms. Jamie Visinoni, (530) 634-4451, jamie.visinoni@beale.af.mil or contact Dr. James Carucci at (707) 424-8625, james.carucci@us.af.mil.


GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

7 Attachments:

1. Project Locator Map
2. Map of Project Area and APE
3. Historic Aerial Photos
4. Photographs of the Project Area
5. Engineering Site Plan
6. Excerpted Survey Information
7. "AH-21" Site Record

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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September 19, 2013

In reply refer to: USAF_2013_0822_001

Gregory S. Capra, P.E., LEED AP
Deputy Base Civil Engineer
Department of the Air Force
Headquarters 9th Mission Support Group (ACC)
6601 B Street
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for the Construction of Temporary Lodging Facility Project on Beale Air Force Base.

Dear Mr. Capra:

Thank you for your letter dated August 15, 2013, requesting my review and comment with regard to the proposed undertaking to construct a temporary lodging facility on Beale Air Force Base (BAFB), California. The BAFB is consulting with me Pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act. Your consultation letter also provided maps and photographs of the proposed APE, a description of the efforts made by your CRM Manager and regional Archaeologist to identify any historic properties within and near to the APE for this undertaking. In addition to this letter, you provided the following documents:

- *Archaeological Survey of Riparian Corridors at Beale Air Force Base, Yuba County, California* (Pacific Legacy 1996)
- *Beale Air Force Base Intensive Cultural Resources Survey of Proposed Unaccompanied Enlisted Personnel Housing* (UEPH), Yuba County, California (U.S. Army Corps of Engineers 1983)

The BAFB proposes to construct a total of 34 living units within four buildings which will be single-story structures. This will also include construction of a central courtyard, sidewalks, parking areas, "bioswales" and landscaping. Staging of equipment and construction materials will be restricted to existing asphalt covered parking areas and roadways and are included in the Area of Potential Effects (APE). The maximum depth of ground disturbance is 24 inches below the surface for the construction of building foundations, and up to 6 feet deep for lighting poles. The APE includes the full extent of all ground disturbance and construction related activities and totals 6.3 acres. It is roughly rectangular in shape and is within a highly developed central area of BAFB that has been used for various purposes in the past.

Efforts to identify historic properties within the APE consisted of a review of archaeological survey and excavation records, an archaeological survey of the site performed by the BAFB CRM manager and the regional archaeologist for Air Force Installations in California. A geotechnical study was also performed which included eight borings within the APE that reached depths of 11 to 21.5 feet below the surface, and a Ground Penetrating Radar (GPR) study was conducted to identify subsurface vernal pools. The Geotechnical and GPR studies noted evidence of considerable disturbance of the surface of the landscape due to past land uses and neither document reported any evidence of anthropogenic activity in the APE. The entire APE was covered in a 1996 archeological survey, and a portion of the APE was surveyed in 1983. These surveys, and the survey conducted by BAFB in 2013 did not identify any historic properties within the APE. One historic field camp or recreation site, "AH-21", was identified approximately 400 meters northwest of the APE. Because the ground visibility during the 2013 survey was only about 5 percent, a second survey is scheduled to occur within a month or two prior to implementing the undertaking. If anything is found, the BAFB CRM staff will immediately re-open consultation with our office. The BAFB CRM staff has met with interested Native American tribal representatives about this project and has received responses that some of the

tribes would be interested in monitoring construction activities. The BAFB will invite interested tribes to monitor the project if they wish to do so. The BAFB is asking for me to concur with their delineation of the APE for this undertaking, and with their finding of "No Historic Properties Affected" for this undertaking. After reviewing the documentation submitted to this office, I offer the following comments:

- Pursuant to 36 CFR 800.4(a)(1) I have no objections to the identification and delineation of the APE for this undertaking.
- Pursuant to 36 CFR 800.2 (c), I concur with your finding of no historic properties affected for this undertaking.
- I recommend providing interested Native American tribes the opportunity to monitor all construction activities. Also, for future consultation with my office, please provide written documentation of your communication with Native American tribal representatives for the undertaking.

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the COE may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions, please contact Jessica Tudor of my staff at (916) 445-7016 or jessica.tudor@parks.ca.gov, or Ed Carroll of my staff at ed.carroll@parks.ca.gov or (916) 445-7006.

Sincerely,

A handwritten signature in black ink, reading "Carol Roland-Nawi, Ph.D." in a cursive script.

Carol Roland-Nawi, PhD
State Historic Preservation Officer



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

13 FEB 2014

MEMORANDUM FOR STATE HISTORIC PRESERVATION OFFICER
ATTN: DR. CAROL ROWLAND-NAWI
Department of Parks and Recreation
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

FROM: 9 CES/CD
6451 B Street
Beale AFB, CA 95903-1708

SUBJECT: Proposed Replacement of Bridges 2710 and 2720 on Gavin Mandery Drive – Beale AFB

1. In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Beale Air Force Base (AFB), is advising you of the proposed replacement of two bridges, Facilities 2710 and 2720, on Beale AFB. This consultation combines a discussion of the Area of Potential Effect (APE) for the undertaking (per 36 CFR 800.4) with our finding of No Adverse Effect. Our finding is based on the facts of this undertaking and data from archaeological and architectural field surveys.
2. Beale Air Force Base is situated on the eastern margin of the Sacramento Valley, about 35 miles north-northeast of Sacramento. The base, more than 23,000 acres in size, is home to the 9th Reconnaissance Wing, which maintains fleets of manned and unmanned surveillance aircraft. The base population includes more than 4,500 military persons.
3. In accordance with 36 CFR Section 800.4(a) (1), the APE is described as the footprint of each bridge across the width of the creek beds (Approximately 30 by 40 feet), and associated construction buffers and construction staging areas. Access routes and staging areas will be confined to existing paved roads. Project location has been provided in Attachments 1 and 2.
4. In accordance with NHPA Section 800.11(d) (1), the undertaking is described below:
 - a. The existing bridges have been found to be structurally deficient and functionally obsolete. Due to the severity of their degradation, they must be surveyed annually for signs of imminent failure. Despite this, the bridges are still utilized, as they are located on one of the major roads connecting the main cantonment area to the installation's housing area.
 - b. This project proposes to remove the bridges in their entirety and replace them with new structures. New bridges will be constructed of reinforced concrete with an asphalt overlay. The project is currently in the early design stage. Preliminary design documents are attached (Attachment 3).

5. In accordance with 36 CFR Section 800.11(d) (2), identification of historic properties is below:

a. Both bridges were constructed in 1953 and are, therefore, greater than 50 years of age. Neither of the bridges has been previously evaluated for National Register of Historic Places (NRHP) eligibility. OHP DPR (Office of Historic Preservation, Department of Parks and Recreation) 523 forms have been completed for this project and are attached to this letter along with photographs of the bridges (Attachments 4, 5, & 6). Both bridges are of common design and materials with no significant historical or engineering associations. Because of their lack of significance and compromised structural integrity, the Air Force has determined them to be Not Eligible for listing in the NRHP.

b. There is one known archeological site in the vicinity of both bridges, north of Gavin Mandery Drive. The site, CA-YUB-1247H, was surveyed in 1993 and is located 40 feet north of the road, more than 300 feet from the APE boundary, along the fence line parallel to the road, and near the site of an 1870s era homestead. It is unknown if the materials found at the site, all historical in age, are related to that homestead. No buildings from the homestead are extant. The previously completed Department of Parks and Recreation (DPR) form for the archeological site is included with this letter as Attachment 7. Site CA-YUB-1247H was tested in 1994, but no significant or diagnostic archaeological deposits were recovered and NRHP eligibility is unlikely. However, for the purposes of this undertaking, Beale AFB will assume that the site is eligible for the NRHP and will seek to avoid all impacts to the site.

c. As planning for the bridge replacement project continues, the following measures have been identified and will be implemented to ensure protection of site CA-YUB-1247H. Construction limits will be established to protect the site and construction buffer fencing will be erected to prevent equipment from encroaching on the site. Prior to the beginning of construction, a Beale AFB Environmental representative will conduct environmental awareness training for all construction personnel. Awareness of potential cultural resources in the construction area will be addressed. It is common practice at Beale AFB to resurvey project areas prior to construction. An archeological field survey will be programmed into the project timeline. If any new archeological materials are found during that survey, Beale AFB cultural resources staff will immediately contact the SHPO with their findings. Finally, monitoring of ground-disturbing activities will occur during construction. If any archeological resources are discovered, construction will immediately cease, the resources will be evaluated, and necessary consultation steps will be conducted according to the Beale AFB Integrated Cultural Resources Management Plan and 36 CFR Part 800.

6. Beale AFB hereby submits this letter of consultation, with appropriate attachments, for your concurrence with the following determinations:

a. Based on the research conducted by Beale AFB personnel and the opinion of the contracted architectural historian, neither bridge is eligible for the National Register. In summary, these bridges are utilitarian in design and they serve a common function allowing base personnel to access the housing area. More specifically, these bridges are not associated with

any specific events that are important to Beale AFB history. Their design and construction are unremarkable, and they are not likely to yield important information about history.

b. The proposed undertaking, "Replacement of Bridges 2710 and 2720 on Gavin Mandery Drive," will have No Adverse Effect on historic properties.

c. Site CA-YUB-1247H will be unaffected by this undertaking. However, if the project plans or implementation change significantly, or if unexpected archaeological deposits are found near site 1247H or in any other location during project construction, procedures related to the protection and management of unexpected discoveries shall be followed, and this consultation will be reopened.

7. If you have questions about the undertakings described in this letter, please contact the Beale AFB Cultural Resources Manager, Mr. Charles Carroll, at (530) 634-2738, charles.carroll3@us.af.mil. You may also contact Dr. James Carucci, (707) 424-8625, james.carucci@us.af.mil, or Mr. James Lang, (530) 634-2642, james.lang.6@us.af.mil.



GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

Attachments:

1. Location Map
2. APE Map
3. Bridge Design Document
4. Facility 2710 DPR 523 Form
5. Facility 2720 DPR 523 Form
6. Photos of Facilities 2710 and 2720
7. Site CA-YUB-1247H Archaeological Site Record

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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March 03, 2014

In reply refer to: USAF_2014_0224_002

Gregory S. Capra, P.E., LEED AP
Deputy Base Civil Engineer
Department of the Air Force
Headquarters 9th Mission Support Group (ACC)
6601 B Street
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for the Replacement of Bridges 2710 and 2720, Beale Air Force Base, Yuba County

Dear Mr. Capra:

Thank you for initiating consultation regarding the United States Air Force's (USAF) efforts to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF has identified the undertaking as the replacement of Bridges 2710 and 2720 with reinforced concrete bridges. Project components include sewer replacement as necessary, rip rap installation, drainage improvements, bridge demolition, grading and compaction.

Identification efforts including a records search and pedestrian survey determined that CA-YUB-1247H, a historic era homestead foundation and associated elements, is present within the area of potential effects. As this site has not yet been evaluated for National Register of Historic Places (NRHP) eligibility, the USAF is proposing to assume the site NRHP eligible for the purposes of this undertaking. It is my understanding the USAF conducted appropriate tribal consultation for this undertaking and a buffer zone will be erected around CA-YUB-1247H to ensure it will not be affected by project activities. The USAF also intends to conduct archaeological monitoring during ground disturbance and should the discovery of any cultural resources occur, all work will be halted until the significance of these resources can be determined. The USAF has further determined that Bridges 2710 and 2720, constructed in 1953, are not eligible for NRHP inclusion.

The USAF is now requesting my concurrence with their NRHP eligibility determinations and their finding of no adverse effect to historic properties pursuant to 36 CFR Part 800.5(b). After reviewing the information provided I concur with these determinations. Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the USAF may have additional responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions, please contact Ed Carroll of my staff at ed.carroll@parks.ca.gov / (916) 445-7006.

Sincerely,

A handwritten signature in black ink that reads "Carol Roland-Nawi, Ph.D.".

Carol Roland-Nawi, PhD
State Historic Preservation Officer



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

14 FEB 2014

MEMORANDUM FOR STATE HISTORIC PRESERVATION OFFICER
ATTN: DR. CAROL ROWLAND-NAWI
Department of Parks and Recreation
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

FROM: 9 CES/CD
6451 B Street
Beale AFB, CA 95903-1708

SUBJECT: Proposed Demolition of former Temporary Lodging Facilities (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116) – Beale AFB

1. In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Beale Air Force Base (AFB), is advising you of a proposed undertaking at the installation, which has the potential to affect historic properties. The proposed demolition of the former Temporary Lodging Facilities (TLF) includes Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116. This consultation combines a discussion of the Area of Potential Effect (APE) for the undertaking (per 36 CFR 800.4) with our finding of No Historic Properties Affected. Our finding is based on the facts of this undertaking and data from architectural field surveys.
2. Beale AFB is situated on the eastern margin of the Sacramento Valley, about 35 miles north-northeast of Sacramento near Marysville, California. The base, more than 23,000 acres in size, is home to the 9th Reconnaissance Wing, which maintains fleets of manned and unmanned surveillance aircraft. The base population includes more than 4,500 military persons.
3. In accordance with 36 CFR Section 800.4(a)(1), the APE is described as the footprint of each building, their associated pavements and supporting infrastructure, as well as construction buffers, staging areas and access routes. Locational information is included as Attachments 1 and 2.
4. In accordance with NHPA Section 800.11(d)(1), the undertaking is described below:
 - a. The buildings are proposed for demolition as a result of Department of Defense efforts to reduce real estate inventories and maintenance costs. The buildings were originally constructed as TLFs, providing temporary housing for airmen and their families. They currently serve as office space with some units used as housing for special purposes. This action would remove the buildings in their entirety, including foundation systems and associated pavements. Connections to base infrastructure, including plumbing and electrical systems, will be capped and left in place. Ground disturbance will be kept to a minimum.

5. In accordance with 36 CFR Section 800.11(d)(2), identification of historic properties is below:

a. All of the TLF buildings are greater than 45 years of age and have been previously surveyed and evaluated for National Register of Historic Places (NRHP) eligibility, although the surveys have not been submitted to your office for concurrence. The Air Force has determined that all of the buildings proposed for demolition are Not Eligible for listing in the NRHP due to a lack of historical and architectural significance. OHP DPR (Office of Historic Preservation, Department of Parks and Recreation) 523 Forms have been completed for these resources as part of the current project. The buildings have been grouped onto a single form, as they were built as a functionally related unit. These forms are included as Attachment 3. Additional photos of the resources are included as Attachment 4.

b. There are no known historic buildings or historic districts near the affected area.

c. There are no known archeological sites in the vicinity of these buildings.

6. Beale AFB hereby submits this letter of consultation, with appropriate attachments, for your concurrence with the following determinations:

a. Based on the research conducted by Beale personnel and the opinion of the contracted architectural historians, none of these buildings are eligible for the National Register. These buildings are utilitarian in design and they serve a common function providing temporary lodging for military personnel. More specifically, these buildings are not associated with any specific events that are important to Beale AFB history (Criterion A), their design, construction, and use are not associated with important designers, engineers, or Air Force personnel (Criterion B), they are not distinctive in design or workmanship, nor are they excellent representations of their type (Criterion C), and they are not likely to yield important historical information about military facilities (Criterion D).

b. No Historic Properties Affected (No Effect) determination for the proposed demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116.

7. If you have questions about the undertakings described in this letter, please contact the Beale AFB Cultural Resources Manager, Mr. Charles Carroll, at (530) 634-2738, charles.carroll3@us.af.mil. You may also contact Dr. James Carucci, (707) 424-8625, james.carucci@us.af.mil, or James Lang, (530) 634-2642, james.lang.6@us.af.mil.


GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

4 Attachments:

1. Location Map
2. APE Map
3. Buildings 5109-5116 DPR 523 Form
4. Additional Photos

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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March 03, 2014

In reply refer to: USAF_2014_0224_001

Gregory S. Capra, P.E., LEED AP
Deputy Base Civil Engineer
Department of the Air Force
Headquarters 9th Mission Support Group (ACC)
6601 B Street
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for Demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114 and 5116,
Beale Air Force Base, Yuba County

Dear Mr. Capra:

Thank you for initiating consultation regarding the United States Air Force's (USAF) efforts to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF has identified the undertaking as the demolition of Buildings 5109, 5110, 5111, 5112, 5113, 5114 and 5116. In addition to proposed building demolition and foundation and pavement removal, it is the USAF's intention to cap all utilities in place.

Identification efforts including a records search and pedestrian survey found no previously recorded historic properties within the project area and it is my understanding the USAF has conducted appropriate tribal consultation for this undertaking. Buildings 5109, 5110, 5111, 5112, 5113, 5114 and 5116 were constructed in 1967 as temporary housing facilities. Having evaluated the seven subject buildings using National Register of Historic Places (NRHP) criteria, the USAF has determined they are not eligible for NRHP inclusion.

The USAF is now requesting my concurrence with their NRHP eligibility determinations for Buildings 5109, 5110, 5111, 5112, 5113, 5114 and 5116 and with their finding of no historic properties affected pursuant to 36 CFR Part 800.4 (d)(1). After reviewing the information provided I concur with these determinations. Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the USAF may have additional responsibilities for this undertaking under 36 CFR Part 800.

Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions, please contact Ed Carroll of my staff at Ed.Carroll@parks.ca.gov / (916) 445-7006.

Sincerely,

A handwritten signature in black ink that reads "Carol Roland-Nawi, Ph.D.".

Carol Roland-Nawi, PhD
State Historic Preservation Officer



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

25 FEB 2014

MEMORANDUM FOR STATE HISTORIC PRESERVATION OFFICER
ATTN: DR. CAROL ROWLAND-NAWI
Department of Parks and Recreation
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

FROM: 9 CES/CD
6451 B Street
Beale AFB, CA 95903-1708

SUBJECT: Proposed Base Demolition Plan (Buildings 355, 1028, and 2594) – Beale AFB

1. In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Beale Air Force Base, is advising you of a proposed undertaking which has the potential to affect historic properties. The proposed Base Demolition Plan includes the demolition of Buildings 355, 1028, and 2594. This consultation combines a discussion of the Areas of Potential Effect (APE) for the undertaking (per 36 CFR 800.4) with our finding of No Historic Properties Affected. Our finding is based on the facts of this undertaking and data from architectural field surveys.

2. Beale AFB is situated on the eastern margin of the Sacramento Valley, about 35 miles north-northeast of Sacramento near Marysville, California. The base, more than 23,000 acres in size, is home to the 9th Reconnaissance Wing, which maintains fleets of manned and unmanned surveillance aircraft. The base population includes more than 4,500 military persons.

3. In accordance with 36 CFR Section 800.4(a) (1), the APE is described as the footprints of those buildings, associated pavements and infrastructure, construction buffers, staging areas and access routes. Project location information is included as Attachments 1 and 2.

4. In accordance with NHPA Section 800.11(d) (1), the undertaking is described below:

a. The buildings are proposed for demolition as a result of Department of Defense efforts to reduce real estate inventories and maintenance costs. Some of the buildings are unoccupied; others are considered obsolete for current use. The buildings would be removed in their entirety, including foundation systems and associated pavements.

b. Connections to base infrastructure, including plumbing and electrical systems, will be capped and left in place. Ground disturbance will be kept to a minimum.

5. In accordance with 36 CFR Section 800.11(d) (2), identification of historic properties is below:

a. All of the buildings are greater than 45 years of age or older and have been previously surveyed and evaluated for National Register of Historic Places (NRHP)-eligibility, although the surveys have

not been submitted to your office for concurrence. The Air Force has determined that all of the buildings proposed for demolition are Not Eligible for listing in the NRHP due to a lack of historical and architectural significance. OHP DPR (Office of Historic Preservation, Department of Parks and Recreation) 523 Forms have been completed for these resources as part of the current project. These forms are included as Attachments 3, 4, and 5, for your review. Additional photos are also attached for your review.

b. These areas do not contain historic buildings or historic districts. Many older buildings at Beale AFB have been altered, and new buildings have been constructed throughout the various cantonment, flightline, and housing areas. Because of these changes, these areas do not contain historic properties.

c. There are no known archeological sites in the vicinity of any of these buildings.

6. Beale AFB hereby submits this letter of consultation, with appropriate attachments, for your concurrence with the following determinations:

a. Based on the research conducted by Beale personnel and the opinion of the contracted architectural historians, none of these buildings are eligible for the National Register. In summary, these buildings are utilitarian in design and they served common functions. More specifically, these buildings are not associated with any specific events that are important to Beale AFB history. Their design and construction are unremarkable, and they are not likely to yield important historical information about military facilities. Buildings 355, 1028, and 2594 are Not Eligible for listing in the NRHP.

b. No Historic Properties Affected (No Effect) determination for the proposed demolition of Buildings 355, 1028, and 2594.

7. If you have questions about the undertakings described in this letter, please contact the Beale AFB Cultural Resources Manager, Mr. Charles Carroll, at (530) 634-2738, charles.carroll.3@us.af.mil. You may also contact Dr. James Carucci, (707) 424-8625, james.carucci@us.af.mil, or James Lang, (530) 634-2642, james.lang.6@us.af.mil.



GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

Attachments:

1. Location Map
2. APE Maps
3. Building 355 DPR 523 Form
4. Building 1028 DPR 523 Form
5. Building 2459 DPR 523 Form
6. Additional Photos

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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March 06, 2014

In reply refer to: USAF_2014_0226_001

Gregory S. Capra, P.E., LEED AP
Deputy Base Civil Engineer
Department of the Air Force
Headquarters 9th Mission Support Group (ACC)
6601 B Street
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for Demolition of Buildings 355, 1028 and 2594, Beale Air Force Base, Yuba County

Dear Mr. Capra:

Thank you for initiating consultation regarding the United States Air Force's (USAF) efforts to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF has identified the undertaking as the demolition of Buildings 355, 1028 and 2594. In addition to proposed building demolition and foundation and pavement removal, it is the USAF's intention to cap all utilities in place.

Identification efforts including a records search and pedestrian survey found no previously recorded historic properties within the project area and it is my understanding the USAF has conducted appropriate tribal consultation for this undertaking. Documentation relates that Building 355 was constructed in 1953 as the base jail, Building 1028 is a storage shed constructed in 1966 and Building 2459 was constructed as a warehouse in 1952 that later served as the base commissary. Having evaluated the three subject buildings using National Register of Historic Places (NRHP) criteria, the USAF has determined they are not eligible for NRHP inclusion.

The USAF is now requesting my concurrence with their NRHP eligibility determinations for Buildings 355, 1028 and 2594 and with their finding of no historic properties affected pursuant to 36 CFR Part 800.4 (d)(1). After reviewing the information provided I concur with these determinations. Please be advised that under certain circumstances such as unanticipated discovery or a change in project description, the USAF may have additional responsibilities for this undertaking under 36 CFR Part 800.

Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions, please contact Ed Carroll of my staff at Ed.Carroll@parks.ca.gov / (916) 445-7006.

Sincerely,

Carol Roland-Nawi, PhD
State Historic Preservation Officer

APPENDIX D

DOCUMENTATION OF USFWS CONSULTATION EVALUATIONS AND NOT LIKELY TO ADVERSELY AFFECT LETTERS



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To

08ESMF00-2013-F-0582-1

DEC 5 2013

Mr. Gregory S. Capra
Deputy Base Civil Engineer
9 CES/CD
6601 B Street
Beale AFB, California 95903-1708

Subject: Formal Consultation on the Proposed Construction of a Temporary Lodging Facility at Beale Air Force Base, Yuba County, California

Dear Mr. Capra:

This letter is in response to Beale Air Force Base's (Beale AFB/base) August 7, 2013, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Construction of a Temporary Lodging Facility at Beale Air Force Base (proposed project) in Yuba County, California. Your request, which included the *Construct Temporary Lodging Facility at Beale Air Force Base, California Abbreviated Biological Assessment* (biological assessment), was received by the Service on August 8, 2013. The biological assessment presents an evaluation of the proposed project's effects on species federally-listed under the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 *et seq.*) (Act).

The federal action we are consulting on is the construction of a Temporary Lodging Facility on Beale AFB. The base is owned and operated by the United States Air Force. This response is provided under the authority of the Act, and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Pursuant to 50 CFR 402.12(j), you submitted the biological assessment for our review and requested our concurrence with the findings presented therein, while also concurrently initiating formal consultation pursuant to 50 CFR 402.14(c). The findings presented in the biological assessment conclude that the proposed project may affect, and is likely to adversely affect the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (tadpole shrimp) and the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp) (collectively, the vernal pool crustaceans). You arrived at this determination by analyzing the effects of the proposed project using the October 2, 2012, *Programmatic Biological Opinion for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California* (Service File Number 81420-2009-F-1118-1) (SAMP programmatic). The SAMP programmatic was created to provide a framework to help Beale AFB personnel determine the effects of future proposed projects on federally-listed species within the base (Table 1). The

proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation of the biological assessment's findings on the following: 1) your August 7, 2013, letter initiating formal consultation, received by the Service on August 8, 2013; 2) the August 2013, *Construct Temporary Lodging Facility at Beale Air Force Base, California Abbreviated Biological Assessment* (biological assessment) prepared by the base; 3) the October 2, 2012, SAMP programmatic; and 4) additional information available to the Service.

After reviewing all the available information, we concur with your determination that the proposed project may affect, and is likely to adversely affect the vernal pool crustaceans. We also find that your written request, and the accompanying biological assessment, fulfills the requirements for initiation of formal consultation and that the proposed project is appropriately evaluated under the SAMP programmatic. Therefore, this document provides our biological opinion on the effects of the proposed project on the vernal pool crustaceans.

Consultation History

- August 8, 2013* The Service received the August 7, 2013, letter from Beale AFB requesting formal consultation on the proposed project, along with the biological assessment.
- August 25, 2013* The Service and Beale AFB participated in a conference call discussing consultation on projects under the SAMP programmatic.

Table 1. Effects Thresholds for Vernal Pool Crustaceans

Criteria	Level 1	Level 2	Level 3
	No Effect	May Affect, Not Likely to Adversely Affect	May Affect, Likely to Adversely Affect
Proximity to Resources	Work beyond 250' of wetlands and no hydrological connectivity Work on paved/gravel surfaces Work within paved/gravel road shoulders	Work outside wetlands but within 250 feet of wetlands that meet the following criteria: • wetland is higher in elevation than the work site • wetland area is upstream of the project • a physical barrier to hydrological connectivity is present • shallow excavation (not penetrating the hardpan), or • other reasons why wetlands are not impacted	Work within 250 feet of wetlands that meet the following criteria: • wetland is lower in elevation than the work site • wetland area is downstream of the project • hydrological connectivity is present • excavation penetrating the hardpan, or • other reasons why wetlands are impacted

BIOLOGICAL OPINION

Description of the Proposed Action

Beale AFB proposes to construct a Temporary Lodging Facility consisting of four buildings clustered together on a previously disturbed, vacant site near the intersection of Robert Nicoletti Way and C Street. The facility itself is permanent, and will provide temporary lodging for personnel receiving training in support of intelligence operations. The proposed project consists of the following construction activities:

- Site preparation, including clearing and grading of the entire proposed project site;
- Construct four new single-story buildings containing a total of 34 units (46,500 square feet);
- Construct a bio-swale on the northeast end of the proposed project area to handle storm water runoff to maintain the pre-construction hydrology of the site; and
- Construct accompanying parking lots around the perimeter of the site with two access points from C Street and sidewalks providing access between and around the lots and buildings.

The proposed project site contains disturbed annual grassland, including remnants of discarded concrete, asphalt, cobbles, and pipes. The site formerly supported two buildings that have been demolished. Currently, the site is used as an exercise area with a paved jogging path and exercise stations. It is bordered on two sides by unlined, vegetated drainage ditches. The site is located within the SAMP Low Integrity/Developed Area category identified in the SAMP programmatic and is not within the Beale core area within the Southeastern Sacramento Valley vernal pool region identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).

Wetland features on the proposed project site were previously mapped using Laser Imaging, Detection, and Ranging (LIDAR) in 2009. However, upon ground-truthing, base biologists determined that the historic use of the site left an uneven landscape leading to false identifications of wetland features by the LIDAR. Therefore, a revised wetland assessment of the site was completed in May 2013 by the Institute for Ecohydrology Research. Field surveys were completed using real time kinematic global positioning system (RTK GPS) to redefine wetland boundaries and create digital terrain models mapping flows contributing to individual features. Ground-penetrating radar was used to determine the presence or absence and depth of water-restricting soil layers. Vegetation surveys were also conducted. Vernal pool crustacean surveys have not been completed on the proposed project site; however, vernal pool crustaceans have been recorded throughout the base. The closest known occurrences are of tadpole shrimp at 4,110 feet and fairy shrimp at 2,420 feet, both southeast of the proposed project site.

As a result of the updated mapping effort, two vernal pools and two swales were identified on or within 250 feet of the proposed project site. One 0.007-acre vernal pool (VP 1608 as depicted on Figure 2 in the biological assessment) is within the construction footprint and provides suitable

habitat for the vernal pool crustaceans. One swale (Sw 1776) is within the construction footprint; however, it is shallow, dominated by upland vegetation, and lacks a water-restricting soil layer. Therefore, the biological assessment concluded that it is unlikely that swale Sw 1776 provides suitable habitat for the vernal pool crustaceans. The remaining pool and swale (VP 6775 and 1807) are more than 100 feet outside of the construction footprint and are physically separated from the construction footprint by a stream (St192), which collects surface runoff from the site. Therefore, the biological assessment concluded that they are unlikely to be affected by proposed project activities.

Avoidance and Minimization Measures

Avoidance and minimization measures in the SAMP programmatic are applied based on three levels of effects thresholds (Table 2). For the proposed project, the *General Avoidance and Minimization Measures* described on pages 20-23 of the SAMP programmatic and species-specific *Avoidance and Minimization Measures for Vernal Pool Crustaceans* described on pages 25-26 of the SAMP programmatic will be applied throughout the proposed project site. In addition, Beale AFB proposes to compensate for vernal pool VP 1608 at a ratio of 3:1, as required by the Level 3 effects threshold and described under *Compensation Measures for Vernal Pool Crustaceans* on pages 28-29 of the SAMP programmatic. The base will purchase 0.021-acre of vernal pool habitat preservation credits at a Service-approved conservation bank with a Service area that covers the proposed project.

Action Area

The action area is defined in 50 CFR §402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the Service considers the action area to be the construction footprint of the proposed project, parking lots, and associated features. The action area also includes all areas outside of the construction footprint that will be temporarily impacted by dust and noise during project activities.

Evaluation under the Programmatic Consultation

The Service has determined that it is appropriate to evaluate the proposed project under the SAMP programmatic. New construction of facilities is a covered action under the SAMP programmatic. Beale AFB has determined the effects and proposed the avoidance and minimization measures identified within the SAMP programmatic appropriately based on the effects thresholds outlined in Tables 1 and 2.

Effects of the Action

The construction of the proposed project will result in direct effects to 0.007-acre of vernal pool crustacean habitat. Vernal pool VP 1608 will be graded, filled, and paved over due to construction of the proposed project, resulting in the loss of vernal pool crustacean habitat and the death of an unknown number of cysts. Construction activities will crush or destroy the cysts of the vernal pool crustaceans and prevent their future emergence.

Vernal pool VP 6775 and swale Sw 1807 are not likely to be adversely affected based on their separation from proposed project activities by the stream which collects surface runoff from the site and the avoidance and minimization measures proposed by the base under the Level 2 effects threshold.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, county, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any reasonably certain future action that could result in effects in the action area.

Table 2. Response Based On Effects Thresholds for Vernal Pool Crustaceans

Criteria	Level 1	Level 2	Level 3
	No Effect	May Affect, Not Likely to Adversely Affect	May Affect, Likely to Adversely Affect
Submittal to Service	No submittal	A project description with map showing all wetlands areas within 250 feet, describing how wetlands will be avoided and how the effects will be minimized to an insignificant level. The submittal shall include the following information of the project site and surrounding area: • Conceptual design • Topography description • Hydrological description • Soil/hardpan data • Species data (proximity of past occurrences in relation to project area) • Physical barriers between project and wetlands • Effects of the project • Justification for the NLAA recommendation	A project description with map showing all wetlands areas within 250 feet. More specific project design and biological data will be provided for portions of the project that may affect wetlands or riparian areas. • Detailed design • Topography description • Hydrological description • Soil/hardpan data • Species data (including site specific survey data, if applicable) • Explanation of direct or indirect impacts • Physical barriers between project and wetlands • Effects of the project • Proposed compensation • Justification for the May Adversely Affect recommendation
Location	SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas	SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas; and SAMP High Integrity/ Conservation Areas	SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas; and SAMP High Integrity/ Conservation Areas
Avoidance & Minimization Measures	All equipment and excess soil must stay on paved/gravel surfaces	General Avoidance Measures; Species-Specific Avoidance Measures; No compensatory mitigation required	General Avoidance Measures; Species-Specific Avoidance Measures; Compensatory mitigation may be required

Conclusion

After reviewing the current status of the vernal pool crustaceans, the environmental baseline in the SAMP programmatic, the effects of the proposed action, the cumulative effects, and the proposed conservation measures, it is the Service's biological opinion that the Construction of a Temporary Lodging Facility at Beale Air Force Base project, as proposed, is not likely to jeopardize the continued existence of the vernal pool crustaceans. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of the lack of cumulative effects, will not rise to the level of precluding recovery of the species or reducing the likelihood of survival of the species. The effects to the vernal pool crustaceans are small and discrete, relative to the range of the species, and although the loss of habitat will contribute to the overall reduction of habitat within the range, the conservation measures will contribute to the long-term preservation and management of vernal pool crustacean habitat. The project will contribute to the conservation of the vernal pool crustaceans by preserving habitat at a conservation bank that will manage a large contiguous section of habitat for the benefit of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of the Incidental Take Statement in the SAMP programmatic.

The measures described in the incidental take statement of the SAMP programmatic are non-discretionary, and must be undertaken by Beale AFB so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. Beale AFB has a continuing duty to regulate the activity covered by this incidental take statement. If Beale AFB (1) fails to assume and implement the terms and conditions or (2) fails to require any contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Beale AFB must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement in the SAMP programmatic [50 CFR §402.14(i)(3)].

Amount or Extent of Take

The incidental take of vernal pool crustaceans for the proposed project will result from the destruction of 0.007-acre of suitable habitat on-site. The life stage affected by the proposed project will be the cysts of the vernal pool crustaceans, which are embedded in the soil of the vernal pool. Due to the fact that it is not possible to know how many cysts are in the soil of any wetland feature, or how many individuals or cysts will occupy any wetland feature later in time, the Service cannot quantify the total number of vernal pool crustacean individuals or cysts that we anticipate will be taken as a result of the proposed project. In instances in which the total number of individuals and/or cysts anticipated to be taken cannot be determined, the Service may use the acreage of habitat impacted as a surrogate; since the take of cysts and individuals anticipated will result from the destruction of the vernal pool crustacean habitat, the quantification of habitat acreage serves as a direct surrogate for the vernal pool crustaceans that will be lost. Therefore, the Service anticipates take incidental to the proposed project as the 0.007-acre of suitable vernal pool crustacean habitat that will be directly affected.

Effect of the Take

The Service has determined that the level of anticipated take is not likely to result in jeopardy to the vernal pool crustaceans.

REINITIATION—CLOSING STATEMENT

This concludes the Service's review of the proposed Construction of a Temporary Lodging Facility at Beale Air Force Base project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been maintained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this biological opinion, please contact Lily Douglas, Fish and Wildlife Biologist, or Kellie Berry, Chief, Sacramento Valley Division, at (916) 414-6645.

Sincerely,



Kenneth D. Sanchez
Assistant Field Supervisor

LITERATURE CITED

- U.S. Fish and Wildlife Service (Service). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Region 1, Portland, Oregon. December 2005. xxvi + 606 pp.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W2605
Sacramento, California 95825

In Reply Refer to

08ESMF00-2014-I-0208-1

Gregory S. Capra
Deputy Base Civil Engineer
9 CES/CD
6601 B Street
Beale AFB, California 95903-1708

JAN 29 2014

Subject: Informal Consultation on the Replace Bridges 2710 and 2720 on Gavin Mandery Project at Beale Air Force Base, Yuba County, California

Dear Mr. Capra:

This letter is in response to Beale Air Force Base's (Beale AFB/base), January 15, 2014, letter requesting informal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Replace Bridges 2710 and 2720 on Gavin Mandery at Beale Air Force Base project (proposed project), in Yuba County, California. Your request was received by the Service on January 21, 2014. You requested our concurrence that the proposed project may affect, but is not likely to adversely affect, the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (tadpole shrimp) and the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp) (collectively, the vernal pool crustaceans). You arrived at this determination by analyzing the effects of the proposed project using the October 2, 2012, *Programmatic Biological Opinion for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California* (Service 2012) (SAMP programmatic). The SAMP programmatic was created to provide a framework for Beale AFB personnel to use to determine the effects of future proposed projects on federally-listed species within the base. Our primary concern and mandate is the protection of federally-listed species pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this consultation are based on: (1) the July 2013, Biological Assessment titled *Replace Bridges 2710 and 2720 at Beale Air Force Base, California - Informal Consultation* and your initiation letter, received by the Service January 15, 2014; (2) the October 2, 2012, SAMP programmatic (File# 81420-2009-F-1118-1); (3) a January 22, 2014, site visit by the Service and Beale AFB personnel; and (4) e-mails between the Service and Beale AFB personnel; and (5) other information available to the Service.

Project Description

To meet current and future improvements and maintenance requirements on the installation that support ongoing mission requirements, Beale AFB is proposing to replace two bridges on the base: Bridge 2710 and Bridge 2720 along Gavin Mandery Drive. The proposed project is planned for the dry season (late spring and summer) of 2014.

Bridges 2710 and 2720 cross two tributaries of Hutchinson Creek, which flows southwest into the Bear and Feather Rivers. The bridges were constructed in 1954. A 12-inch sanitary sewer line parallels the south edge of Gavin Mandery Drive across both bridges. The area of land disturbance for Bridge 2710 is 0.30 acre, while the area of land disturbance for Bridge 2720 is 0.35 acre.

The proposed project consists of the following construction activities:

- Demolish both bridges, including the removal of all structural components, columns, guardrails, wingwalls, abutments, and foundations.
- Widen Gavin Mandery Drive at Bridge 2710 to accommodate two 12-foot wide lanes and a 4-foot wide paved shoulder.
- Install new cast-in-place double-box reinforced concrete bridges per Caltrans standards.
- Install new cast-in-place reinforced concrete warped wingwalls and aprons per Caltrans standards.
- Install new guardrails per Caltrans standards.
- Repair the sanitary sewer line.
- Repair upstream and downstream erosion on the banks of Hutchinson Creek near the two bridges using rip-rap and other soil stabilization measures to reduce the potential of future erosion.
- Repave Gavin Mandery Drive over the entire length of the construction area.
- Install temporary above-ground bypass for the sewer line to ensure continued sanitary sewer service during the planned demolition and construction activities.
- Construct a temporary low-flow stream bypass and check dam system on the north side of each bridge during demolition and construction activities.

Bridge 2710

The tributary of Hutchinson Creek that flows beneath Bridge 2710 is intermittently flooded. Three image features (ID# 6953, ID #9114, and ID #840) were identified as vernal pools within 250 feet of the bridge construction footprint using Light Detection and Ranging (LiDAR) mapping techniques. Feature ID# 6953 is located about 15 feet south of Gavin Mandery Drive and 10 feet east of Hutchinson Creek. However, a qualified biologist determined that ID #6593 is dominated by non-native grassland species rather than hydrophytic vegetation, and also lacks hydric soils. Feature ID #6593 is unlikely to provide vernal pool habitat.

Vernal pool feature ID# 9114 is about 190 feet upstream (north) of the Bridge 2710 construction footprint. Vernal pool feature ID# 840 is a similar distance to the southwest of the construction footprint. However, there is an upland ridge that hydrologically separates the ID #840 feature from the Bridge 2710 construction footprint. Neither vernal pool feature is expected to be negatively affected by the Bridge 2710 work, which will occur during the dry season.

Bridge 2720

The tributary of Hutchinson Creek that flows beneath Bridge 2720 also is intermittently flooded. Five image features (ID#'s 831, 872, 5494, 5495, and 9179) were identified as vernal pools by LiDAR mapping. Feature ID# 831 is within 250 feet of the Bridge 2720 construction footprint, yet is upstream (northwest) and separated from construction by A Street and Gavin Mandery Drive. A qualified biologist determined features ID# 872 and ID# 9179 do not contain hydrophytic plants or hydric soils, and therefore are not likely to provide vernal pool habitat.

A qualified biologist has confirmed that features ID# 5494 and ID# 5495 are vernal pools; however, these features are at a higher elevation than the construction area. There also is a ridge that provides a barrier between these vernal pool features and Hutchinson Creek, south of the construction area.

Proposed Conservation Measures

The proposed conservation measures below are included as part of the proposed project to fulfill the criteria in the SAMP programmatic for a "not likely to adversely affect" determination. These measures include the *Species Specific Avoidance and Minimization Measures* described in the SAMP programmatic and are further described below.

1. Best Management Practices will be implemented to prevent sediment from entering vernal pools that are within 250 feet of, or have a hydrologic connection to, the project site. This includes but is not limited to, the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.
2. A Service-approved biologist from the Beale AFB Environmental Office will monitor all construction activities to ensure compliance with the avoidance and minimization components of the proposed project. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.
3. A Service-approved biological monitor from the Beale AFB Environmental Office will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover vernal pool crustaceans and their habitats that might be encountered during project construction. The awareness training will cover all of the restrictions and guidelines that must be followed to avoid or minimize impacts on vernal pool crustaceans and their habitat. The training will also include the penalties for violating the provisions of the Act. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and/or when new personnel join the construction crews.
4. Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.
5. All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool crustacean habitat.

6. All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools.

Conclusion

Based on our review of the information provided, the Service concurs with your determination that the proposed project is not likely to adversely affect the vernal pool crustaceans. Areas identified as vernal pools that are located within 250 feet of the proposed project are either upslope of project construction or are unlikely to support the vernal pool crustaceans. No construction activities will occur within any wetland feature other than Hutchinson Creek. The forks of Hutchinson Creek where construction will occur are intermittent creeks that are unlikely to support the vernal pool crustaceans. In addition, Beale AFB has proposed to adhere to the perimeters and conservation measures described in the SAMP programmatic for a "not likely to adversely affect" determination.

This concludes our review of the proposed Replace Bridges 2710 and 2720 on Gavin Mandery Project at Beale Air Force Base project. Unless new information reveals effects of the proposed action that may affect federally-listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Act is necessary.

If you have any questions regarding the Replace Bridges 2710 and 2720 on Gavin Mandery at Beale Air Force Base project, please contact Harry Kahler, Fish and Wildlife Biologist, of my staff at (916) 414-6600.

Sincerely,



Daniel Welsh
Assistant Field Supervisor

cc:

Ms. Jamie Visinoni, Beale AFB, CA

LITERATURE CITED

U.S. Fish and Wildlife Service (Service). 2012. Programmatic Biological Opinion for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California. October 2. 81420-2009-F-1118-1.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE

ATTN: MS. KELLIE BERRY
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1846

FROM: 9 CES/CD
6601 B Street
Beale AFB, CA 95903-1708

SUBJECT: Informal Consultation – Replace Bridges 2710 and 2720 on Gavin Mandry at
Beale Air Force Base (AFB), California

1. The intent of this letter is to get written concurrence from the U.S. Fish and Wildlife Service that the Replace Bridges 2710 and 2720 on Gavin Mandry Projects at Beale AFB, California are not likely to adversely affect species listed under the federal Endangered Species Act. We have prepared a package summarizing the details of the project (Attachment).
2. We do not believe that these projects will result in impacts to vernal pool tadpole shrimp (*Lepidurus packardi*), or vernal pool fairy shrimp (*Branchinecta lynchi*). Furthermore, we do not believe this project is likely to adversely affect other federally-listed species that occur in the general region of Beale AFB.
3. Beale AFB has a Programmatic Biological Opinion (PBO) with the USFWS (Reference # 81420-2009-F-1118-1) and intends to work most routine mission activities under the PBO.
4. Please review the enclosed documents and contact Jamie Visinoni at (530) 634-4451 or jamie.visinoni.1@us.af.mil if you have comments or need additional information.

GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

Attachment:
Replace Bridges 2710 and 2720 on Gavin Mandry Drive Informal Consultation

REPLACE BRIDGES 2710 AND 2720
AT
BEALE AIR FORCE BASE, CALIFORNIA

Informal Consultation

DECEMBER 2013



PREPARED BY:

BEALE AIR FORCE BASE
9 CES/CEIE
6601 B STREET
BEALE AIR FORCE BASE, CA 95903-1712

CONTACT:

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(530) 634-4451
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1. Purpose and Need

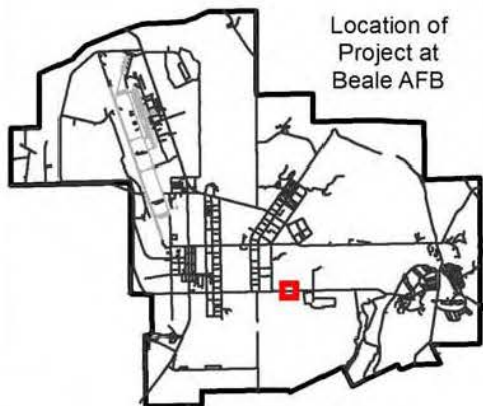
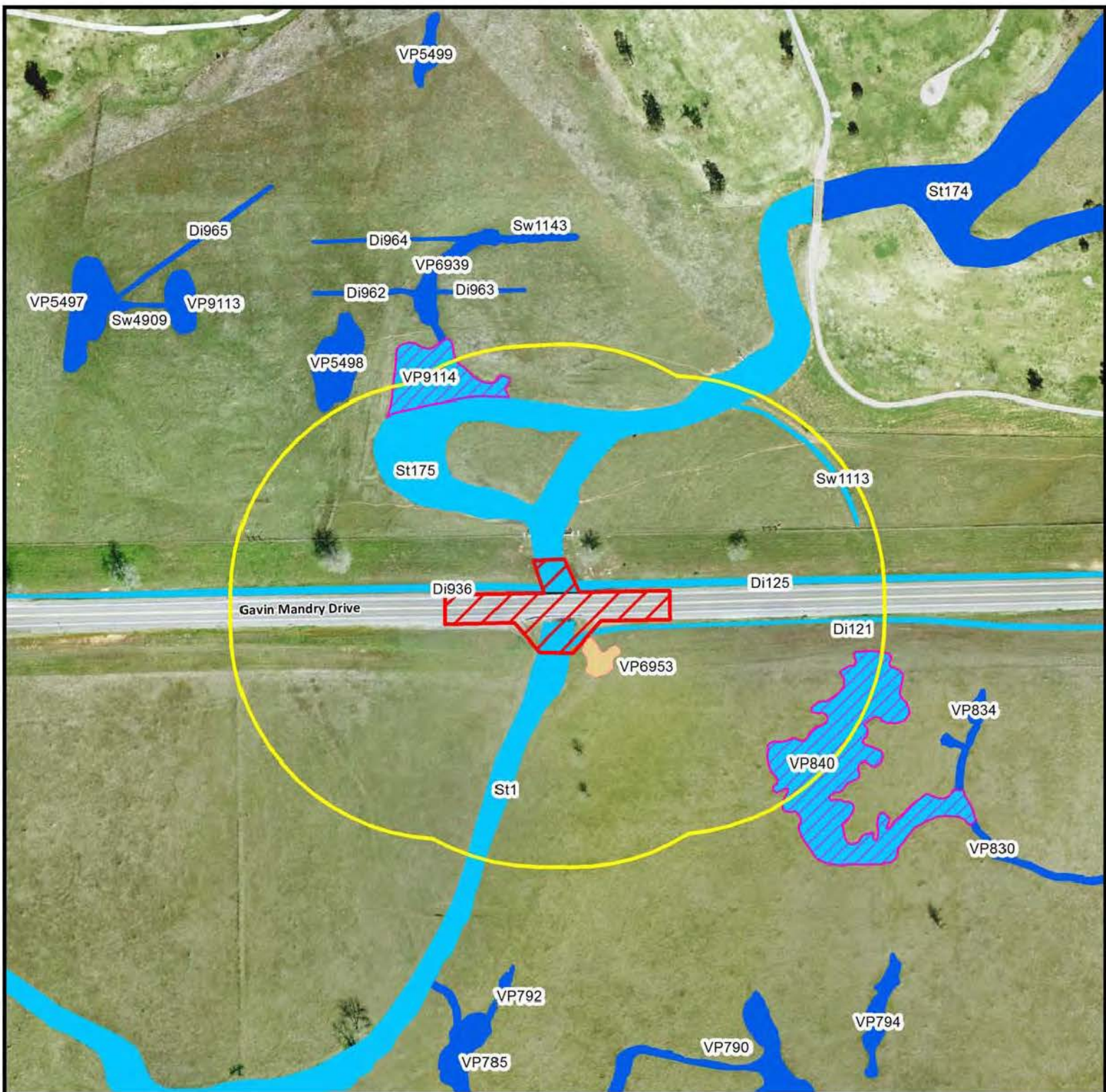
Beale AFB proposes to implement two projects to meet current and future improvements and maintenance requirements on the installation to support ongoing mission requirements. These include replacement of Bridges 2710 and 2720 on Gavin Mandry Drive.

A Sustainability Assessment performed in March 2012 assessing the condition of Beale AFB infrastructure and determined that Bridges 2710 and 2720 on Gavin Mandry Drive are in “unsatisfactory” condition. The purpose of these projects is to replace these bridges. These projects are needed because the condition of the bridges has deteriorated such that they pose a risk to human health and safety and could disrupt mission operations at Beale AFB. Bridge 2710 has been evaluated and determined to be in “critical” condition. Bridge 2720 has been evaluated and determined to be in “poor” condition. Because these bridges are in advanced stages of deterioration of primary structural elements, they need to be replaced. The bridges have evidence of fatigue cracks in the steel and shear cracks in the concrete structures and scouring, which has weakened the substructure support. If these bridges continue to deteriorate, it might be necessary to close them until corrective action is taken, which could impact transportation access and cause delays in mission-support functions.

2. Description of Proposed Projects

Beale AFB would replace Bridges 2710 and 2720 along Gavin Mandry Drive (see **Figures 1** and **2**). These bridges were built in 1954 and reconstructed in 1972. Bridges 2710 and 2720 cross tributaries of Hutchinson Creek. Bridge 2710 consists of a 2-span, continually reinforced, cast-in-place concrete slab. Bridge 2720 consists of a double arch, corrugated metal culvert with reinforced concrete slab over backfill and reinforced concrete headwalls. A 12-inch sanitary sewer line parallels the south edge of Gavin Mandry Drive and crosses Hutchinson Creek. This sewer line is attached to both bridges. The area of land disturbance for replacement of Bridge 2710 is 0.30 acres and the area of land disturbance for replacement of Bridge 2720 is 0.35 acres. Demolition and construction activities of both bridges would only occur during the dry season and would not require channel dewatering. The two projects will be completed in accordance with and appended to the Programmatic Biological Opinion (PBO) and the Special Area Management Plan (SAMP) (USFWS 2012). The proposed project would consist of following:

- Demolish both bridges, including removal of all structural components, columns, guardrails, wingwalls, abutments, and foundations
- Widen Gavin Mandry Drive at Bridge 2710 to accommodate two 12-foot wide lanes and a 4-foot wide paved shoulder
- Install new cast-in-place double-box reinforced concrete bridges per Caltrans standards
- Install new cast-in-place reinforced concrete warped wingwalls and aprons per Caltrans standards
- Install new guardrails per Caltrans standards
- Repair the sanitary sewer line
- Repair upstream and downstream erosion on the banks of Hutchinson Creek near the two bridges using rip-rap and other soil stabilization measures to reduce potential of further erosion
- Repave Gavin Mandry Drive over the entire length of the construction area
- Install temporary aboveground bypass for the sewer line to ensure continued sanitary sewer service during planned demolition and construction activities
- Construct a temporary low-flow stream bypass and check dam system on the north side of each bridge during demolition and construction activities.



Beale AFB



Figure 1
Replace Bridge 2710

Legend

Project Area

250' Project Buffer

Aquatic Resource Type

Field Verified Non-Vernal Pool

Branchiopod Habitat

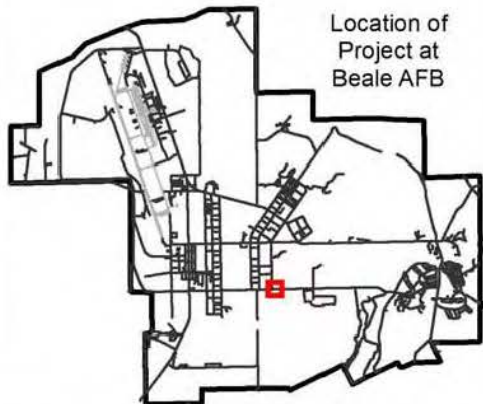
Resources Inside 250'

Resources Outside 250'

Special Status Shrimp

Known Locations

All Sampling Locations



Beale AFB



Figure 2
Replace Bridge 2720

Legend

Project Area

250' Project Buffer

Aquatic Feature Type

Field Verified Non-Vernal Pool

Brachiopod Habitat

Resources Inside 250'

Resources Outside 250'

Special Status Shrimp

Known Locations

All Sampling Locations

3. Affected Environment

The following subsection describes the affected environment of each of the project areas.

Site Geology

➤ Bridge 2710

The project area soil consists of Perkins Loam, 0 to 2 percent slopes. Perkins loam is found on stream terraces and valleys. The parent material consists of mixed alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is rarely flooded and it is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

The topography within the Bridge 2710 area is mostly flat at 110 feet above mean sea level (MSL) with the only slopes being those created by the eroded banks of the Hutchinson Creek tributary, which flows north to south. The bed of the creek lays 8 feet lower in elevation from the surrounding high ground. Bridge 2710 and Gavin Mandry Drive is 2 feet higher in elevation than the surrounding area. A slight elevation ridge occurs 200 feet east of Bridge 2710, where the natural contours of the land directs sheet flow west towards the creek. The natural contours west of Bridge 2710 direct sheet flow east towards the creek.

➤ Bridge 2720

The project area soil consists of two soils types including Perkins Loam, 0 to 2 percent slopes and Redding-Corning Complex, 0-3 percent slopes. Other minor components of the map unit include unnamed, Perkins, and San Joaquin. Minor components consist of 10 percent or less of the map unit.

Perkins loam is found on stream terraces and valleys. The parent material consists of mixed alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is moderate. This soil is rarely flooded and it is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

The Redding, gravelly loam component makes up 40 percent of the map unit. Slopes are 0 to 3 percent. This component is on fan terraces and valleys. The parent material consists of mixed alluvium. Depth to a root restrictive layer inches, abrupt textural change. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is very low. Shrink-swell potential is high. This soil is not flooded and it is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

The topography within the Bridge 2720 area is mostly flat at 110 feet above MSL with the only slopes being those created by the eroded banks of the Hutchinson Creek tributary, which flows north to south. The bed of the creek lays 8 feet lower in elevation from the surrounding high ground. Bridge 2720 and Gavin Mandry Drive are 2 feet higher in elevation than the surrounding area. The natural contours surrounding Bridge 2720 directs all sheet flow towards the creek.

Wetland Features

➤ Bridge 2710

Two vernal pool features (VP ID# 6953 and VP ID# 840, 830, and 834) were mapped within 250 feet of the Bridge 2710 footprint on the Light Detection and Ranging (LiDAR) map (see **Figure 1**). The LiDAR map shows a vernal pool feature (VP ID# 6953) 15 feet south of the Gavin Mandry Drive and 10 feet east of the creek. During the site visit a qualified biologist evaluated VP ID# 6953 and determined a dominance of non-native grassland (NNG) plant species and hydric soils were absent at the location of VP ID# 6953. It is Beale AFB's recommendation that VP ID# 6953 not be considered a vernal pool because it did not meet the three parameter test for a wetland. Hydrophytic vegetation, hydric soils and sources of hydrology were absent at the location of VP ID # 6953. VP ID #6953 does not support habitat for vernal pool species.

Vernal pool communities occur in low spots of topography. VP ID# 840, 830, and 834 were confirmed to be part of a large vernal pool complex; however, this complex is hydrologically separated from the proposed project area by an upland ridge. Plant species observed in vernal pool communities include *Navarretia* sp., coyote-thistle, and least Spikerush (*Eleocharis acicularis*). Additionally, VP ID# 9114 is within 250 feet of the proposed project area, but it is upstream of the impact area.

➤ Bridge 2720

Several vernal pool features were mapped within 250 feet of the Bridge 2720 footprint on the LiDAR map (VP ID#'s 5494, 5495, 9179, 831, 5493, 872, and 856, see **Figure 2**). VP ID#'s 856 and 872 are separated from the proposed project area by Gavin Mandry Drive and A Street. Hydrophytic vegetation and hydric soils were absent in VP ID# 9179 and 831. These features do not support habitat for vernal pool species. VP ID# 5493 is higher in elevation and separated from the proposed project area by a ridge. VP ID#'s 5494 and 5495 were confirmed to be vernal pools; however, these areas are higher in elevation, upstream from the proposed project area, and a large ridge creating a physical barrier is present.

NNG is the dominate vegetation community and occurs above the OHWM of the creek and throughout the area. Plant species observed within the NNG community include Mediterranean barley, clover, wild oat, English plantain, yellow star-thistle, prickly lettuce, medusahead, broad-leaf filaree, common chickweed, dove weed, common sow thistle (*Sonchus oleraceus*), and field mustard.

Waters of the United States

Bridges 2710 and 2720 cross forks of Hutchinson Creek, which is an intermittent creek. There are a number of vernal pools located within 250 feet of the proposed project areas. However, no construction- or demolition-related activities will occur in any vernal pool.

A Section 401 water certification from the Central Region Water Quality Control Board (CRWQCB) and a Section 404 permit from the U.S. Army Corps of Engineers (USACE) will be obtained prior to commencing construction- and demolition-related activities. A National Pollutant Discharge Elimination System (NPDES) permit will not be required since less than 1 acre of land will be disturbed.

➤ Bridge 2710

During a 15 November 2013 field survey, Hutchinson Creek was dry with a distinct bed and bank. A shelving line was present along the ordinary high water mark (OHWM) of the creek. The OHWM is approximately 40 feet wide. Stream vegetation occurs below the OHWM of the Hutchinson Creek

tributary. Plant species observed below the OHHM of the creek include: coyote-thistle (*Eryngium vaseyi*) and popcorn flower (*Plagiobothrys* sp.). Vegetation is mainly absent within the bed of the creek.

Prior to a 5 December 2013 field survey, Beale AFB personnel conducted emergency repairs on the Bridge 2710 deck footings. Emergency repairs included addition of rip rap below the Bridge 2710 bridge deck and contouring of the creek bank upstream and downstream of the bridge. Beale AFB personnel noted that a separate request for concurrence from the USFWS will be prepared for this emergency work at Bridge 2710 (Beale AFB 2013). The request for concurrence for the emergency work will be prepared and submitted by Beale AFB personnel.

➤ Bridge 2720

During the 15 November 2013 field survey, Hutchinson Creek was dry with a distinct bed and bank. The bed of the creek has a sandy and cobble substrate below the bridge overcrossing. A shelving line is present along the ordinary high water mark OHWM of the creek. During the 5 December 2013 field survey, over 2 feet of flowing water was observed in the creek. The OHWM is approximately 35 feet wide. Plant species observed below the OHWM of the creek include: annual rabbitsfoot grass (*Alopecurus* [*Polypogon*] *monspeliensis*), least Spikerush, prostrate knotweed (*Polygonum aviculare*), bulrush (*Schoenoplectus* (*Scirpus*) *acutus*), narrow-leaved cattail (*Typha angustifolia*), blue vervain (*Verbena hastata*), and cocklebur (*Xanthium strumarium*).

Threatened & Endangered Species' Habitat

There are seven animal species formally protected under federal law that are or potentially could be found at Beale AFB. Only two of these seven species have the potential to occur at or near the project sites.

➤ Bridge 2710

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest *B. lynchi* specimen recorded (2008) was located approximately 3,500 feet south of the project area. Vernal pools will not be disturbed by this project, thus no fairy shrimp should be impacted. The nearest recorded special status vernal pool species was located approximately 2,400 feet northeast of the Bridge 2710 replacement project area.

Vernal pool tadpole shrimp (*Lepidurus packardii*): The nearest *L. packardii* specimen recorded (2008) was located approximately 4,955 feet south of the project area. Vernal pools will not be disturbed by this project, thus no tadpole shrimp should be impacted.

➤ Bridge 2720

Vernal pool fairy shrimp: The nearest *B. lynchi* specimen recorded (2008) was located approximately 3,500 feet south of the project area. Vernal pools will not be disturbed by this project, thus no fairy shrimp should be impacted. The nearest recorded special status vernal pool species was located approximately 2,400 feet northeast of the Bridge 2720 replacement project area.

Vernal pool tadpole shrimp: The nearest *L. packardii* specimen recorded (2008) was located approximately 4,955 feet south of the project area. Vernal pools will not be disturbed by this project, thus no tadpole shrimp should be impacted.

1 **Table 1. Wetland Features within 250 feet of Replace Bridge 2710**

ID * Number	Wetland Type	Feature's Relative Elevation to Project	Hydrolog- ically Connected (Y, N, ?)	Nearest Distance to Project (feet) **	No Impact Justification
1	Stream (St)	Down-Slope	Y	0	This stream is a tributary of Hutchinson Creek. The OHWM is approximately 40 feet wide. Plant species observed below the OHWM of the creek include: coyote-thistle (<i>Eryngium vaseyi</i>) and popcorn flower (<i>Plagiobothrys</i> sp.). The stream does not provide habitat for vernal pool species.
175	Stream (St)	Down-slope	Y	0	This stream is a tributary of Hutchinson Creek. The OHWM is approximately 40 feet wide. Plant species observed below the OHWM of the creek include: coyote-thistle and popcorn flower. The stream does not provide habitat for vernal pool species.
840	Vernal Pool (VP)	Up-slope	N		This vernal pool is separated from the project site by an upland ridge. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
6953	Field Verified Non-Vernal Pool	Up-slope	N	15	Hydrophytic vegetation, hydric soils and sources of hydrology were absent at the location of VP ID # 6953.
9114	Vernal Pool (VP)	Down-slope	Y	240	This vernal pools is hydrologically connected to Hutchinson Creek. It does contain vegetation consistent with vernal pools. Proposed down-slope development is 250 feet away. Design features and strict adherence to erosion and sediment control BMPs should avoid any impact.
121	Ditch (Di)	Same	Y	5	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
125	Ditch (Di)	Same	Y	5	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
936	Ditch (Di)	Same	Y	5	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1113	Swale (Sw)	Down-slope	Y	240	This swale is hydrologically connected to Hutchinson Creek. Proposed down-slope development is 240 feet away. Design features and strict adherence to erosion and sediment control BMPs should avoid any impact.

2

1 **Table 2. Wetland Features within 250 feet of Replace Bridge 2720**

ID * Number	Wetland Type	Feature's Relative Elevation to Project	Hydrolog- ically Connected (Y, N, ?)	Nearest Distance to Project (feet) **	No Impact Justification
1	Stream (St)	Down-slope	Y	0	This stream is a tributary of Hutchinson Creek. The OHWM is approximately 40 feet wide. Plant species observed below the OHWM of the creek include: annual rabbitsfoot grass (<i>Alopecurus [Polypogon] monspeliensis</i>), least Spikerush, prostrate knotweed (<i>Polygonum aviculare</i>), bulrush (<i>Schoenoplectus (Scirpus) acutus</i>), narrow-leaved cattail (<i>Typha angustifolia</i>), blue vervain (<i>Verbena hastata</i>), and cocklebur (<i>Xanthium strumarium</i>). The stream does not provide habitat for vernal pool species.
179	Stream (St)	Down-Slope	Y	0	This stream is a tributary of Hutchinson Creek. The OHWM is approximately 40 feet wide. Plant species observed below the OHWM of the creek include: annual rabbitsfoot grass (<i>Alopecurus [Polypogon] monspeliensis</i>), least Spikerush, prostrate knotweed (<i>Polygonum aviculare</i>), bulrush (<i>Schoenoplectus (Scirpus) acutus</i>), narrow-leaved cattail (<i>Typha angustifolia</i>), blue vervain (<i>Verbena hastata</i>), and cocklebur (<i>Xanthium strumarium</i>). The stream does not provide habitat for vernal pool species.
831	Field Verified Non-Vernal Pool	Down-slope	N	200	Hydrophytic vegetation and hydric soils were absent in VP ID # 831. These features do not support habitat for vernal pool species.
5494	Vernal Pool (VP)	Up-Slope	N	140	VP ID# 5494 is higher in elevation, upstream from the proposed project area, and a large ridge creating a physical barrier is present. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
5495	Vernal Pool (VP)	Up-slope	N	200	VP ID# 5495 is higher in elevation, upstream from the proposed project area, and a large ridge creating a physical barrier is present. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
9179	Field Verified Non-Vernal Pool	Down-slope	N	175	Hydrophytic vegetation and hydric soils were absent in VP ID # 9179. These features do not support habitat for vernal pool species.

2

ID * Number	Wetland Type	Feature's Relative Elevation to Project	Hydrolog- ically Connected (Y, N, ?)	Nearest Distance to Project (feet) **	No Impact Justification
147	Ditch (Di)	Same	N	180	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
936	Ditch (Di)	Same	Y	5	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
981	Ditch (Di)	Same	Y	20	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1059	Swale (Sw)	Up-slope	N	200	This swale is connected to VP ID 5494 and 5495. Most the vegetation is non-native annual grassland within the swale. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1062	Swale (Sw)	Up-slope	N	200	This swale is connected to VP ID 5494 and 5495. Most the vegetation is non-native annual grassland within the swale. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1064	Swale (Sw)	Up-slope	N	125	This swale is connected to VP ID 5494 and 5495. Most the vegetation is non-native annual grassland within the swale. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.

1

2 4. Avoidance, Minimization, and Compensation Measures

3 The Environmental Office has worked with the project proponents to identify a series of avoidance,
4 minimization, and compensation measures to be implemented as part of the proposed bridge replacement
5 projects. Our assessment of the potential impacts of the proposed actions and alternatives is based on
6 implementation of these measures.

1 **Table 3. Avoidance and Minimization Measures**

General Avoidance and Minimization Measures	
1. Preconstruction Surveys	A USFWS-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species are present prior to the start of construction. These surveys will be conducted 2 weeks prior to the start of construction activities in any sensitive habitat. If any federally listed species are found during the preconstruction surveys, the USFWS-approved biologist will contact the USFWS to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys. No project activities will begin until proponents have received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
2. Construction Monitoring	A USFWS-approved biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with the avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the USFWS-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biological monitor exercises this authority, he/she must notify the USFWS by telephone and letter within 1 working day.
3. Environmental Awareness Training	Environmental awareness training will be provided for all construction personnel working on Beale AFB. Training will be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program will consist of a briefing on environmental issues relative to the proposed project. Training will be conducted by a USFWS-approved biologist. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that could occur in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Endangered Species Act (ESA), including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies.
4. Invasive Species	A USFWS-approved biological monitor will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible (Beale AFB 2011). When practicable, invasive exotic plants identified in the project area will be removed.
5. USFWS Notification	Beale AFB will track the area of impact resulting from the proposed projects and will submit a report to the USFWS summarizing these acreages on a project-by-project basis.
6. Erosion Control	All wetlands/drainages/vernal pools, if present, will have erosion-control measures (e.g., straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment or construction workers access those protected areas.

2

General Avoidance and Minimization Measures	
7. Reseeding	All areas of ground disturbance or exposed soil will be reseeded with a native “weed free” seed mix approved by the Beale AFB Environmental Office.
8. Mowing	Mowing in and around vernal pool crustacean habitat after seed dispersal and during the dry season is considered a NLAA action.
9. Exclusionary Period	No work will be conducted within 250 feet of vernal pools and streams between 1 November and 1 May unless specifically approved by the Beale AFB Environmental Office who will field verify soil saturation, visual ponding, and expected surface disturbance. The USFWS will be notified of any work approved between 1 November and 1 May.
10. Demarcation of Sensitive Areas	Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (e.g., vernal pool branchiopods) will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an environmentally sensitive area. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion.
11. Off-Road Travel	Off-road travel outside of the demarcated construction boundaries will be prohibited.
12. Demarcation of Work and Staging Areas	Beale AFB (or the contractor to Beale AFB) will provide all materials to stake and flag boundaries of the work area. Beale AFB will coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans, valley elderberry longhorn beetle, giant garter snake, or their habitat. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur.
13. Report Kills/Injuries	Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform the 9th Civil Engineer Squadron, Environmental Element (9 CES/CEIE). The 9 CES/CEIE will verbally notify the Sacramento Fish and Wildlife Office within 3 days and will provide written notification of the incident within 5 days.
14. Fueling and Servicing in Designated Areas	Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
15. Garbage Removal	During construction activities, all trash that could attract predators will be properly contained, removed from the work site daily, and disposed. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.

<i>General Avoidance and Minimization Measures</i>	
16. Disposal of Excavated Soil	All soil excavated during construction occurring near vernal pool wetlands will be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil.
17. Minimization of Access Routes	The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and those areas will be outside of wetland/drainage areas.
18. Speed Limits	All vehicle operators will follow the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads.
19. Prohibited Items	No pets or non-military firearms will be allowed in the project area.
20. Pesticide/Herbicide Use	The USFWS must approve any pesticide or herbicide use for projects that could affect Federal-listed species. If pesticides and herbicides are used at the project site, Beale AFB will ensure that label restrictions, and other restrictions mandated by the USEPA and the California Department of Food and Agriculture are observed.
21. Trenches	No trenches will be left open at the end of the day. Trenched areas will be compacted and restored to normal grade. Excavated trenches will be revegetated.
<i>Avoidance and Minimization Measures for Vernal Pool Crustaceans</i>	
22. <i>Best Management Practices</i>	BMPs will be implemented to prevent sediment from entering avoided vernal pools that are located within 250 feet, or have a hydrologic connection to the project site, including the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.
23. Biological Monitor	A USFWS-approved biologist from the Beale AFB Environmental Office will monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the proposed projects. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.
24. Environmental Awareness Training	A USFWS-approved biological monitor from the Beale AFB Environmental Office will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the Proposed Action project sites. Awareness training will cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and will include the penalties for violating the provisions of the ESA. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews.

<i>Avoidance and Minimization Measures for Vernal Pool Crustaceans</i>	
25. Demarcating Habitat	Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.
26. Work and Staging Boundaries	All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool areas.
27. Dust Control	All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools.

1

2 **5. Justification for the Not Likely to Adversely Affect Determination**

3 Based on the proposed project locations, knowledge of Beale AFB, strict adherence to environmental
4 protection measures, site specific species information, and concurrence by the USFWS on similar projects
5 in the SAMP PBO, the Beale AFB Environmental Office believes the proposed actions s are not likely to
6 adversely affect any federally-listed threatened or endangered species.

7 **6. References**

Beale AFB 2011	Beale AFB. 2011. <i>Integrated Natural Resources Management Plan, Beale Air Force Base, California</i> . August 2011 to August 2016. Final. Updated by Beale Air Force Base. October 2011.
Beale AFB 2013	Beale AFB. 2013. Personal communication with Ms. Kylene Lang (9 CES/CEIE) during field visit. 5 December 2013.
USFWS 2012	USFWS. 2012. <i>Programmatic Biological Opinion on Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California</i> . 2 October 2012.

8



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In reply refer to:

08ESMF00-2014-I-0207-1

JAN 31 2014

Gregory S. Capra
Deputy Base Civil Engineer
9 CES/CD
6601 B Street
Beale AFB, California 95903-1708

Subject: Informal Consultation on the Demolish Building 355 at Beale Air Force Base Project, Yuba County, California

Dear Mr. Capra:

This is in response to your January 15, 2014, letter and supporting documentation requesting informal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Demolish Building 355 at Beale Air Force Base Project (proposed project) for potential effects to the federally-threatened vernal pool fairy shrimp (*Branchinecta lynchi*), and the federally-endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (vernal pool crustaceans). Your request was received by the Service on January 21, 2014. You requested our concurrence that the proposed project may affect, but is not likely to adversely affect, the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (tadpole shrimp) and the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp) (collectively, the vernal pool crustaceans). You arrived at this determination by analyzing the effects of the proposed project using the October 2, 2012, *Programmatic Biological Opinion for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California* (Service 2012) (SAMP programmatic). The SAMP programmatic was created to provide a framework for Beale AFB personnel to use to determine the effects of future proposed projects on federally-listed species within the base. Our primary concern and mandate is the protection of federally-listed species pursuant to section 7 (a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this consultation are based on: (1) the January 2014, Biological Assessment titled Demolish Building 355 at Beale Air Force Base (Beale AFB), California – Informal Consultation and your initiation letter, received by the Service January 21, 2014; (2) the October 2, 2012, Special Area Management Plan (SAMP) programmatic (File# 81420-2009-F-1118-1); (3) a January 22, 2014, site visit by the Service and

Beale AFB personnel; and (4) e-mails between the Service and Beale AFB personnel; and (5) other information available to the Service.

Project Description

The proposed project will occur within a fenced, 0.85-acre parcel along K Street, opposite its junction with 11th Street. The proposed project primarily involves the demolition of Building 355 and the removal of its foundations. Additionally, paved parking areas, sidewalks, fencing, and other associated structures also will be removed. Furthermore, building utilities will be terminated, including the cutting and capping of lines.

When demolition is complete all excavated areas will be filled with soil, reseeded, and restored to match the surrounding area. Fill material will be obtained from an approved borrow pit and screened to ensure it contains no hazardous substances. Vegetation communities surrounding the proposed project area are predominantly non-native grassland. All trees and vegetation associated with the building will be relocated or replaced and the area will be reseeded with natural species.

Wetland Features within 250 feet of Demolish Building 355

Eleven image features were identified as wetlands within 250 feet of the proposed project construction footprint using Light Detection and Ranging (LiDAR) mapping techniques. Four features (ID# 1076, 1143, 1144, and 1151) are trapezoidal in shape and serve as drainage ditches to the surrounding areas. Two features identified as vernal pools (ID# 7431 and 7430) lack hydrophytic vegetation, are higher in elevation than the proposed project, and are separated from the proposed project by a ditch (ID #1151).

Three other features identified as vernal pools (ID# 7432, 1260, 9526) are separated from the proposed project area by K Street and 11th Street, which are both asphalt covered roads. One feature to the west (ID # 1226) is separated from the proposed project by a large parking lot and is not hydrologically connected. The last feature identified (ID# 7429) was visited by qualified biologists and was found to be dominated by non-native grasses and lacked hydric soils. Also, a sprinkler head was found in the center of the feature.

Proposed Conservation Measures

The conservation measures listed as criteria in the SAMP programmatic to fulfill a "not likely to adversely affect" determination will be implemented. These measures include the *Species Specific Avoidance and Minimization Measures* further described below.

1. Best Management Practices will be implemented to prevent sediment from entering vernal pools that are within 250 feet of, or have a hydrologic connection to, the project site. This includes but is not limited to, the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.
2. A Service-approved biologist from the Beale AFB Environmental Office will monitor all construction activities to ensure compliance with the avoidance and minimization

components of the proposed project. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.

3. A Service-approved biological monitor from the Beale AFB Environmental Office will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover vernal pool crustaceans and their habitats that might be encountered during project construction. The awareness training will cover all of the restrictions and guidelines that must be followed to avoid or minimize impacts on vernal pool crustaceans and their habitat. The training will also include the penalties for violating the provisions of the Act. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and/or when new personnel join the construction crews.
4. Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.
5. All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment enter vernal pool crustacean habitat.
6. All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools.

Conclusion

Based on our review of the information provided, the Service concurs with your determination that the proposed project is not likely to adversely affect the vernal pool crustaceans. Of the 11 wetland features identified by LiDAR within 250 of the proposed project, four are drainage ditches that are unlikely to support vernal pool crustaceans. The remaining seven features identified were also not likely to support vernal pool crustaceans due to either a lack of hydrologic connectivity or the lack of wetland indicators (i.e., hydric soils, wetland vegetation). In addition, Beale AFB has proposed to adhere to the perimeters and conservation measures described in the SAMP programmatic for a "not likely to adversely affect" determination.

Therefore, after reviewing all the available information, we concur with your determination that the proposed project may affect, but is not likely to adversely affect the vernal pool crustacean species. Unless new information reveals effects of the proposed action that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Act is necessary.

Mr. Will Ness

4

If you have any questions regarding the proposed Demolish Building 355 at Beale Air Force Base Project, please contact Harry Kahler, Fish and Wildlife Biologist, or myself at (916) 414-6600.

Sincerely,



Daniel Welsh
Assistant Field Supervisor

cc:

Jamie Visinoni, 9 CES/CEIE, Beale Air Force Base, California



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE

ATTN: MS. KELLIE BERRY
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1846

FROM: 9 CES/CD
6601 B Street
Beale AFB, CA 95903-1708

SUBJECT: Informal Consultation – Demolition of Building 355 at Beale Air Force Base (AFB), California

1. The intent of this letter is to get written concurrence from the U.S. Fish and Wildlife Service that the Demolish Building 355 Project at Beale AFB, California is not likely to adversely affect species listed under the federal Endangered Species Act. We have prepared a package summarizing the details of the project (Attachment).
2. We do not believe that these projects will result in impacts to vernal pool tadpole shrimp (*Lepidurus packardi*), or vernal pool fairy shrimp (*Branchinecta lynchi*). Furthermore, we do not believe this project is likely to adversely affect other federally listed species that occur in the general region of Beale AFB.
3. Beale AFB has a Programmatic Biological Opinion (PBO) with the USFWS (Reference # 81420-2009-F-1118-1) and intends to work most routine mission activities under the PBO.
4. Please review the enclosed documents and contact Jamie Visinoni at (530) 634-4451 or jamie.visinoni.1@us.af.mil if you have comments or need additional information.

GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

Attachment:
Demolish Building 355 Informal Consultation

DEMOLISH BUILDING 355
AT
BEALE AIR FORCE BASE, CALIFORNIA

Informal Consultation

DECEMBER 2013



PREPARED BY:

BEALE AIR FORCE BASE
9 CES/CEIE
6601 B STREET
BEALE AIR FORCE BASE, CA 95903-1712

CONTACT:

MS. JAMIE VISINONI
(530) 634-4451
JAMIE.VISINONI.1@US.AF.MIL

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1. Purpose and Need

As part of Beale AFB's Demolition Plan, Beale AFB proposes to demolish Building 355 in order to meet current and future improvements and maintenance requirements on the installation to support ongoing mission requirements.

The purpose of this project is to demolish the buildings on Beale AFB that have reached the end of their useable life and that have been identified as excess, obsolete, under-sized, under-used, and deteriorating. Demolition would increase consolidation of mission support functions, optimize space allocation and use, and promote other emerging initiatives. The USAF currently expends a disproportionate amount in both manpower and money to maintain and operate these facilities. In addition, these demolition actions would contribute to the goal of reducing the physical plant footprint of the installation according to the "20/20 by 2020" initiative of making space available for future development.

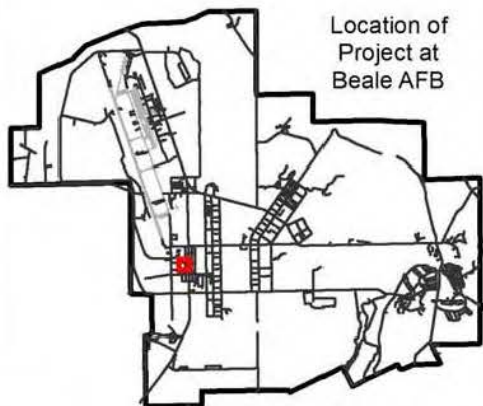
2. Description of Proposed Project

This project will be completed in accordance with and appended to the Programmatic Biological Opinion (PBO) and the Special Area Management Plan (SAMP) PBO (USFWS 2012).

Beale AFB would demolish Building 355 and its associated infrastructure (see **Figure 1**). Demolition activities have the potential to disturb up to 0.85 acres. Demolition of Building 355 would include the following:

- Demolition of the facilities and removal of the foundations
- Demolition of associated parking lots, pavements, sidewalks, fencing, and other structures
- Termination of utilities, including cutting and capping lines
- Restoration of the sites to match the surrounding area.

Upon completion of demolition activities, the excavated areas would be filled with soil and the area reseeded and restored to natural or preexisting conditions. All fill material for restoration activities would be obtained from an approved borrow pit and screened to ensure it contains no cultural resources or hazardous substances. In addition, all trees and vegetation associated with facilities scheduled for demolition would be replaced or relocated as applicable and the area reseeded with appropriate species.



Beale AFB



Figure 1
Demolish Building 355

Legend

Project Area

250-Foot Buffer

Aquatic Resource Type

Field Verified Non-Vernal Pool

Branchiopod Habitat

Resources Inside 250'

Resources Outside 250'

Special Status Shrimp

Known Locations

All Sampling Locations

3. Affected Environment

The following section describes the affected environment of the project area.

Site Geology

The project area soil consists of San Joaquin loam, 1 to 3 percent slopes. The San Joaquin loam component makes up 80 percent of the map unit. This component is on fan terraces, valleys, swales, and mounds. The parent material consists of mixed alluvium. Depth to a root restrictive layer, duripan, is 20 to 40 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is very low. Shrink-swell potential is moderate. This soil is not flooded and it is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

The topography at Building 355 is flat to accommodate the installation of the building, with the only slopes being those created by a man-made ditch.

Soil types on Beale AFB can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The valley soils are high in clay content, underlain by a hardpan, and have a slow permeability, a shallow rooting depth, are droughty, and have a slope of 0 to 3 percent. These soils favor annual grasses and forbes. The soils at Beale AFB limit the construction period on the installation to the dry season (May to November), due to their high clay content and an underlying hardpan. During the winter, soils at the installation become extremely soft and limit any off road activities (Beale AFB 2011). Soils were mapped by the Natural Resources Conservation Service and have been field verified.

Wetland Features

Several large vernal pool features and ditches were mapped within 250 feet of the Building 355 footprint on the Light Detection and Ranging (LiDAR) map (see **Figure 1**). The ditches were uniform and trapezoidal in shape with earthen berms. The ditches run parallel to the existing streets and drain the surrounding areas. Willows (*Salix* sp.) were observed growing in the ditch that runs along the southern boundary of the Building 355 fence.

Vegetation communities surrounding Building 355 are predominately non-native grassland (NNG). Plant species observed include Fitch's tarweed (*Hemizonia fitchii*), perennial willow herb (*Epilobium brachycarpum*), medusahead (*Taeniatherum caput-medusae*), wild oat (*Avena fatua*), *Erodium* sp., yellow star-thistle (*Centaurea solstitialis*), common sunflower (*Helianthus annuus*), clover (*Trifolium* sp.), dove weed (*Croton setigerus*), vetch (*Vicia* sp.), Ripgut brome (*Bromus diandrus*), white brodiaea (*Triteleia hyacinthina*), English plantain (*Plantago lanceolata*), annual bluegrass (*Poa annua*), and field mustard (*Brassica rapa*).

A small area (0.001 acre) south of Building 355 and the drainage ditch was noted to have potential wetland/vernal pool characteristics. This was not on the LiDAR map, and had bare cracked soil with the following plants species: coyote-thistle (*Eryngium vaseyi*), vinegarweed (*Trichostema lanceolatum*), Hyssop loosestrife (*Lythrum hyssopifolium*), navarretia (*Navarretia nigelliformis* spp. *radians*), curly dock (*Rumex crispus*), Mediterranean barley (*Hordeum marinum* ssp. *Gussoneanum*), and popcorn flower (*Plagiobothrys* sp.). This area is located south of the ditch and within the western portion of VP ID # 7430.

Hydrophytic vegetation and hydric soils were absent in VP ID # 7431 and the majority of VP ID # 7430 (see discussion of small area above). These two features are higher in elevation and are separated from the proposed project area by a ditch (physical barrier).

VP ID# 7432, 1260, and 9526 are separated from the proposed project area by K Street and 11th Street, which are both asphalt roads. VP ID# 1226 is separated from the proposed impact area by a large parking lot and is not hydrologically connected.

VP ID #7429 is a small area that was mapped using LiDAR as potentially being a vernal pool. During the site visit, qualified biologists determined this is a small digressional area with a sprinkler head in the center. VP ID #7429 is dominated by NNG species and hydric soils were absent. It was determined that VP ID #7429 does not support federally listed vernal pool species. It is Beale AFB's recommendation that VP ID# 7429 not be considered a vernal pool because it does not support habitat for vernal pool species.

Waters of the United States

A Section 401 water certification from the Central Region Water Quality Control Board (CRWQCB) and a Section 404 permit from the U.S. Army Corps of Engineers (USACE) will be obtained prior to commencing construction- and demolition-related activities. A National Pollutant Discharge Elimination System (NPDES) permit will not be required since less than 1 acre of land will be disturbed.

A small area (0.001 acre) south of Building 355 and the ditch was noted to have potential wetland/vernal pool characteristics. This was not on the LiDAR map, and had bare cracked soil with the following plants species: coyote-thistle (*Eryngium vaseyi*), vinegarweed (*Trichostema lanceolatum*), Hyssop loosestrife (*Lythrum hyssopifolium*), navarretia (*Navarretia nigelliformis* spp. *radians*), curly dock (*Rumex crispus*), Mediterranean barley (*Hordeum marinum* ssp. *Gussoneanum*), and popcorn flower (*Plagiobothrys* sp.). This area is located south of the ditch and within the western portion of VP ID # 7430.

VP ID# 7432, 1260, and 9526 are separated from the proposed project area by K Street and 11th Street, which are both asphalt roads. VP ID# 1226 is separated from the proposed impact area by a large parking lot and is not hydrologically connected.

VP ID #7429 is a small area that was mapped using LiDAR as potentially being a vernal pool. During the site visit qualified biologists determined this is small digressional area with a sprinkler head in the center (Photo 4). VP ID #7429 is dominated by NNG species and hydric soils were absent. It was determined that VP ID #7429 does not support federally listed vernal pool species. It is Beale AFB's recommendation that VP ID# 7429 not be considered a vernal pool because it does not support habitat for vernal pool species.

Threatened & Endangered Species' Habitat

No federally listed plant species have been documented on Beale AFB. There are seven animal species formally protected under federal law that are or potentially could be found at Beale AFB. Only 2 of these 7 species have the potential to occur at or near the project site.

- Vernal pool fairy shrimp (*Branchinecta lynchi*). The nearest special status vernal pool specimen was recorded approximately 2,400 feet northeast of Gavin Mandry Drive. The closest documented occurrence of conservancy fairy shrimp is approximately 12 miles south of Beale AFB. The conservancy fairy shrimp has not been documented on Beale AFB. Vernal pools will not be disturbed by this project, thus no fairy shrimp will be impacted.

- Vernal pool tadpole shrimp (*Lepidurus packardii*). The nearest special status vernal pool specimen was recorded approximately 2,400 feet northeast of Gavin Mandry Drive. The closest documented occurrence of conservancy fairy shrimp is approximately 12 miles south of Beale AFB. The conservancy fairy shrimp has not been documented on Beale AFB. Vernal pools will not be disturbed by this project, thus no fairy shrimp will be impacted.

Table 1. Wetland Features within 250 feet of Demolish Building 355

ID * Number	Wetland Type	Feature's Relative Elevation to Project	Hydrolog- ically Connected (Y, N, ?)	Nearest Distance to Project (feet) **	No Impact Justification
1226	Vernal Pool (VP)	Up-Slope	N	150	This vernal pool is separated from the project site by an impervious parking area. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
1260	Vernal Pool (VP)	Down-slope	N	75	This vernal pool is separated from the project site by an impervious roadway. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
7430	Vernal Pool (VP)	Up-slope	N	30	This vernal pool is within a drainage ditch. It contains vegetation consistent with vernal pools and could be potential special status shrimp habitat. The land slopes from North to South. Design features and strict adherence to erosion and sediment control best management practices (BMPs) should avoid any impact.
7431	Vernal Pool (VP)	Up-slope	N	125	This vernal pool is within a drainage ditch. It contains vegetation consistent with vernal pools and could be potential special status shrimp habitat. The land slopes from North to South. Design features and strict adherence to erosion and sediment control BMPs should avoid any impact.
7432	Vernal Pool (VP)	Down-slope	N	90	This vernal pool is separated from the project site by an impervious roadway. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.
9526	Vernal Pool (VP)	Down-slope	N	150	This vernal pool is separated from the project site by an impervious roadway. It is unlikely the pool or any special status shrimp species would be impacted by the proposed project.

ID * Number	Wetland Type	Feature's Relative Elevation to Project	Hydrolog- ically Connected (Y, N, ?)	Nearest Distance to Project (feet) **	No Impact Justification
7429	Field Verified Non-Vernal Pool	Same	Y	5	This Field Verified non-vernal pool exists directly adjacent to Building 355. It contains wetland vegetation consistent with vernal pools and although unlikely, it could provide potential special status shrimp habitat. It is dominated by NNG species and hydric soils were absent.
1143	Ditch (Di)	Up-Slope	N	50	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1144	Ditch (Di)	Up-slope	Y	50	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1151	Ditch (Di)	Down-slope	Y	0	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.
1076	Ditch (Di)	Up-slope	N	50	This ditch transmits water only during storm events. It lacks vernal pool vegetation. It is unlikely to support special status shrimp species.

1

2 **4. Avoidance, Minimization, and Compensation Measures**

3 The Environmental Office has worked with the project proponents to identify a series of avoidance,
4 minimization, and compensation measures to be implemented as part of the proposed action. Our
5 assessment of the potential impacts of the proposed actions and alternatives is based on implementation of
6 these measures.

1 **Table 2. Avoidance and Minimization Measures**

General Avoidance and Minimization Measures	
1. Preconstruction Surveys	A USFWS-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species are present prior to the start of construction. These surveys will be conducted 2 weeks prior to the start of construction activities in any sensitive habitat. If any federally listed species are found during the preconstruction surveys, the USFWS-approved biologist will contact the USFWS to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys. No project activities will begin until proponents have received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
2. Construction Monitoring	A USFWS-approved biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with the avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the USFWS-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biological monitor exercises this authority, he/she must notify the USFWS by telephone and letter within one working day.
3. Environmental Awareness Training	Environmental awareness training will be provided for all construction personnel working on Beale AFB. Training will be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program will consist of a briefing on environmental issues relative to the proposed project. Training will be conducted by a USFWS-approved biologist. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that could occur in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Endangered Species Act (ESA), including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies.
4. Invasive Species	A USFWS-approved biological monitor will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible (Beale AFB 2011). When practicable, invasive exotic plants identified in the project area will be removed.
5. USFWS Notification	Beale AFB will track the area of impact resulting from the proposed projects and will submit a report to the USFWS summarizing these acreages on a project-by-project basis.
6. Erosion Control	All wetlands/drainages/vernal pools, if present, will have erosion-control measures (e.g., straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment or construction workers access those protected areas.
7. Reseeding	All areas of ground disturbance or exposed soil will be reseeded with a native "weed free" seed mix approved by the Beale AFB Environmental Office.
8. Mowing	Mowing in and around vernal pool crustacean habitat after seed dispersal and during the dry season is considered a NLAA action.

General Avoidance and Minimization Measures	
9. Exclusionary Period	No work will be conducted within 250 feet of vernal pools and streams between 1 November and 1 May unless specifically approved by the Beale AFB Environmental Office who will field verify soil saturation, visual ponding, and expected surface disturbance. The USFWS will be notified of any work approved between 1 November and 1 May.
10. Demarcation of Sensitive Areas	Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (e.g., vernal pool branchiopods) will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an environmentally sensitive area. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion.
11. Off-Road Travel	Off-road travel outside of the demarcated construction boundaries will be prohibited.
12. Demarcation of Work and Staging Areas	Beale AFB (or the contractor to Beale AFB) will provide all materials to stake and flag boundaries of the work area. Beale AFB will coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans, valley elderberry longhorn beetle, giant garter snake, or their habitat. The contractor will remove all fencing, stakes, and flagging within 60 days of construction completion. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur.
13. Report Kills/Injuries	Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform the 9th Civil Engineer Squadron, Environmental Element (9 CES/CEIE). The 9 CES/CEIE will verbally notify the Sacramento Fish and Wildlife Office within 3 days and will provide written notification of the incident within 5 days.
14. Fueling and Servicing in Designated Areas	Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
15. Garbage Removal	During construction activities, all trash that could attract predators will be properly contained, removed from the work site daily, and disposed. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.
16. Disposal of Excavated Soil	All soil excavated during construction occurring near vernal pool wetlands will be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil.
17. Minimization of Access Routes	The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and those areas will be outside of wetland/drainage areas.

<i>General Avoidance and Minimization Measures</i>	
18. Speed Limits	All vehicle operators will follow the posted speed limit on paved roads and a 20-mile-per-hour speed limit on unpaved roads.
19. Prohibited Items	No pets or non-military firearms will be allowed in the project area.
20. Pesticide/Herbicide Use	The USFWS must approve any pesticide or herbicide use for projects that could affect Federal-listed species. If pesticides and herbicides are used at the project site, Beale AFB will ensure that label restrictions, and other restrictions mandated by the USEPA and the California Department of Food and Agriculture are observed.
21. Trenches	No trenches will be left open at the end of the day. Trenched areas will be compacted and restored to normal grade. Excavated trenches will be revegetated.
<i>Avoidance and Minimization Measures for Vernal Pool Crustaceans</i>	
22. <i>Best Management Practices</i>	BMPs will be implemented to prevent sediment from entering avoided vernal pools that are located within 250 feet, or have a hydrologic connection to the project site, including the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.
23. Biological Monitor	A USFWS-approved biologist from the Beale AFB Environmental Office will monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the proposed projects. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.
24. Environmental Awareness Training	A USFWS-approved biological monitor from the Beale AFB Environmental Office will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the Proposed Action project sites. Awareness training will cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and will include the penalties for violating the provisions of the ESA. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews.
25. Demarcating Habitat	Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.
26. Work and Staging Boundaries	All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool areas.
27. Dust Control	All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools.

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2 **5. Justification for the Not Likely to Adversely Affect Determination**

3 Based on the proposed project location, knowledge of Beale AFB, strict adherence to environmental
4 protection measures, site specific species information, and concurrence by the USFWS on similar projects
5 in the SAMP PBO, the Beale AFB Environmental Office believes the proposed action is not likely to
6 adversely affect any federally listed threatened or endangered species.

1 **6. References**

Beale AFB 2011	Beale AFB. 2011. <i>Integrated Natural Resources Management Plan, Beale Air Force Base, California</i> . August 2011 to August 2016. Final. Updated by Beale Air Force Base. October 2011.
USFWS 2012	USFWS. 2012. <i>Programmatic Biological Opinion on Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California</i> . 2 October 2012.

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