FINDING OF NO SIGNIFICANT IMPACT
for the
DOOLITTLE POWER STATION REPAIR & UPGRADE
at
BEALE AIR FORCE BASE, CALIFORNIA

Introduction

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process (EIAP), the U.S. Air Force (Air Force) assessed the potential impacts on the natural and human environment associated with the Doolittle Power Station Repair & Upgrade project, Beale Air Force Base (AFB), California.

Purpose and Need

The purpose of the proposed action is: 1) to ensure electric power supporting all facilities on the Flight Line, the Munition Support Squadron and Global Hawk Campus at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the Global Hawk Campus in the event of an electrical outage.

Currently, the hangars & buildings on the flight line, Munition Support Squadron and Global Hawk Campus at Beale AFB are at risk of periods of non-operation in the event of a power failure subsequently affecting the missions with not having reliable power & backup sources.

Alternatives Considered

Proposed Action

The Proposed Action would replace the existing Doolittle Substation and would install a new smart microgrid, battery energy storage system (BESS), and a 9.2 acre solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

- Install a new 2 MW PV solar array on undeveloped land covering approximately 9.2 acres
- Install new 4 MW microgrid and battery storage area
- Alter an existing man-made runoff pipe from an adjacent water tower to route runoff from the site
- Install new underground conduit and a control room
- Demolish and replace an existing substation
- Replace two existing transformers
- Install a new transformer
- Install new fencing, gates, driveways, and a CMU wall

Alternatives Eliminated from Further Analysis

This EA has considered all reasonable alternatives under the CEQ regulation, 40 CFR §1502.14(a), which states that that all reasonable alternative that have been eliminated must be briefly discussed. The following alternatives have been eliminated:

Additional 5MVA Distribution Substation

An additional 5MVA distribution substation was considered to make up for power deficiencies. This would be less expensive than replacing the existing substation which would meet the power demand required along with an extended service life. However, this approach does not update the existing substation and requires re-routing existing and adding feeders. This results in added maintenance for the 9 CE Electrical Shop, not a feasible alternative.

Western Area Power Administration (WAPA) Substation

The WAPA Substation would service the assets by replacing the power of the existing Doolittle Substation (F1149) with low maintenance costs overtime. However, the total replacement incurs the installation of new feeders for every asset along with the complexity of environmental constraints would result in being cost prohibitive and not meeting the current schedule for the additional power required in the near future.

Original Proposal

The original proposal for the solar array involved having solar panels on both sides of the nearby wetland features located just east of the Proposed Action. Access roads were also proposed to cross the wetland features. This design was not conducive with the nearby environment and was modified to have the project be located on only one side of the wetland features with no aspect of the project coming within 50 feet of the nearby wetlands.

No Action Alternative

The CEQ regulation 40 CFR §1502.14(d) requires the inclusion of a No Action Alternative in the NEPA analysis. Under the No Action Alternative, the Air Force would not construct the Doolittle Power Station and associated structures & equipment. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing Global Hawk Mission at Beale AFB and reliance on fossil fuel powered generators would continue.

Summary of Environmental Consequences

The Air Force has concluded that the Doolittle Power Station Repair & Upgrade project would not affect the following resources: coastal zone management; recreation; socioeconomic resources, population/housing, public services, and environmental justice; wildfires; noise; safety and occupational health; transportation and traffic; floodplains; and geological and mineral resources. Based on the findings in this EA, no significant adverse impacts would result to the following resources: air quality; airspace management & use; land use & agriculture; soil resources; water resources; biological resources; hazardous materials, hazardous wastes, & non-hazardous wastes; utilities & infrastructure; and cultural & tribal cultural resources. No significant adverse cumulative impacts would result from activities associated with the Doolittle Power Station Repair & Upgrade project when considered with past, present,

or reasonably foreseeable future projects.

Below, Table *1* provides a brief summary and comparison of potential impacts under each alternative.

Table *1*: Comparison of Environmental Consequences

Resource Area	Proposed Action	No Action Alternative
Air Quality and Greenhouse Gasses	• **Temporary, negligible adverse impacts** • **Long-term, moderate beneficial direct and indirect impacts**	**Intermittent, minor, adverse impacts**
Airspace Management and Use	**Little to no impact.**	**None.**
Land Use and Agriculture	**Land use: None.** **Agriculture: Negligible.**	**Land Use: None** **Agriculture: None**
Soil Resources	**Negligible long-term adverse impact**	**None**
Water Resources	**Surface Water: negligible and indirect adverse impacts** **Groundwater: None** **Wetlands/Other Waters: Negligible indirect adverse impacts**	**Surface Water: None** **Groundwater: None** **Wetlands: None**
Biological Resources	**Vegetation:** • **Temporary, minor direct adverse impacts** • **Long-term, minor direct beneficial impacts** **Wildlife:** • **Permanent loss of 0.56 acres of grassland habitat** • **Temporary, minor, indirect adverse impacts to wildlife habitat** • **Long-term, minor, indirect beneficial impacts to invertebrate pollinators** **Threatened and Endangered Species:** • **Temporary, negligible indirect adverse impacts** • **Potential for future indirect impacts – negligible with effective AMMs** • **Long-term, moderate, indirect beneficial impacts to monarch butterflies and other natural pollinators**	**Vegetation: None** **Wildlife: None** **Threatened and Endangered Species: None**
Hazardous Materials & Wastes and Non-Hazardous Wastes	**Short-term negligible adverse impacts.**	**None**
Utilities and Infrastructure	• **Temporary, negligible adverse impact** • **Long-term and significantly beneficial impact**	**Negligible to moderate long-term adverse impacts**
Cultural and Tribal Cultural Resources	**None – no historic properties affected**	**None**

Source: Draft EA Doolittle Power Station Repair & Upgrade project (2022)

Public Review and Stakeholder Coordination

A Notice of Availability was published in the Marysville Appeal-Democrat with the release of the Draft EA and Finding of No Significant Impact (FONSI). The Draft EA and FONSI is being made available for review on the internet at https://www.beale.af.mil/Library/Units/Environmental-Information/ from July 13, 2022 to July 28, 2022. The Notice of Availability initiated the 15-calendar day public review period for the Draft EA and FONSI.

A total of 4 federal, 9 state, and 6 local agencies were notified and invited to provide comments during the scoping period of the Project on June 23, 2022. Additionally, Tribal consultation letters were mailed to 9 federally recognized tribes on January 11, 2021. The responses received stated that no cultural resources were known to exist on the site, but if any new information or human remains are found then Beale AFB should contact the respective Tribal points of contact. Details of Section 106 consultations are documented in Appendix E of the EA.

Pursuant to the federal Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §1531 et seq.), Beale AFB led informal consultation efforts on May 19, 2022 with the U.S. Fish and Wildlife Service (USFWS) on any potential impacts from the Project to threatened and endangered species.

Finding of No Significant Impact

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the Proposed Action would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. This analysis fulfills the requirements of NEPA, the President's CEQ 40 CFR §§ 1500-1508 and the Air Force EIAP regulations 32 CF.R § 989. The signing of this Finding of No Significant Impact completes the EIAP.

_____ _____

SEAN T. STAPLER, Lt Col, USAF DATE

Commander, 9th Civil Engineer Squadron

Beale Air Force Base, CA

Draft

ENVIRONMENTAL ASSESSEMENT

for

DOOLITTLE POWER STATION REPAIR & UPGRADE

at

BEALE AIR FORCE BASE, CALIFORNIA

Prepared by:

Beale Air Force Base

9 CES/CEIE

6425 B Street, Building 25390

Beale AFB, CA 95903

JULY 2022

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PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 CFR Parts 1500 to 1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. The EIAP provides an opportunity for public input on Air Force decision-making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

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

This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item

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Executive Summary

INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze potential impacts from the proposed Doolittle Power Station Repair & Upgrade Project on Beale Air Force Base (AFB), California.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code (U.S.C.) 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500−1508; and United States Air Force (USAF) policy and procedures (32 CFR Part 989).

PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is: 1) to ensure electric power supporting Global Hawk missions at Beale Air Force Base (AFB) is maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and, 3) add capability to isolate critical facilities in the event of an electrical outage.

Currently, the hangars & buildings on the flight line, Munition Support Squadron and Global Hawk Campus at Beale AFB are at risk of periods of non-operation in the event of a power failure subsequently affecting the missions with not having reliable power & backup sources.

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would replace the existing Doolittle Substation and would install a new smart microgrid, battery energy storage system (BESS), and a 9.2 acre solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

- Install a new 2 MW PV solar array on undeveloped land covering approximately 9.2 acres
- Install new 4 MW microgrid and battery storage area
- Alter an existing man-made runoff pipe from an adjacent water tower to route runoff from the site
- Install new underground conduit and a control room
- Demolish and replace an existing substation
- Replace two existing transformers
- Install a new transformer
- Install new fencing, gates, driveways, and a CMU wall

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Table ES-1-1 provides a brief summary and comparison of potential impacts under each alternative.

Table ES-1-1: Comparison of Environmental Consequences

Resource Area	Proposed Action	No Action Alternative
Air Quality and Greenhouse Gasses	• Temporary, negligible adverse impacts • Long-term, moderate beneficial direct and indirect impacts	Intermittent, minor, adverse impacts
Airspace Management and Use	Little to no impact.	None.
Land Use and Agriculture	**Land use:** None. **Agriculture:** Negligible.	**Land Use:** None **Agriculture:** None
Soil Resources	Negligible long-term adverse impact	None
Water Resources	**Surface Water:** negligible and indirect adverse impacts **Groundwater:** None **Wetlands/Other Waters:** Negligible indirect adverse impacts	**Surface Water:** None **Groundwater:** None **Wetlands:** None
Biological Resources	**Vegetation:** • Temporary, minor direct adverse impacts • Long-term, minor direct beneficial impacts **Wildlife:** • Permanent loss of 0.56 acres of grassland habitat • Temporary, minor, indirect adverse impacts to wildlife habitat • Long-term, minor, indirect beneficial impacts to invertebrate pollinators **Threatened and Endangered Species:** • Temporary, negligible indirect adverse impacts • Potential for future indirect impacts – negligible with effective AMMs • Long-term, moderate, indirect beneficial impacts to monarch butterflies and other natural pollinators	**Vegetation:** None **Wildlife:** None **Threatened and Endangered Species:** None
Hazardous Materials & Wastes and Non-Hazardous Wastes	Short-term negligible adverse impacts.	None
Utilities and Infrastructure	• Temporary, negligible adverse impact • Long-term and significantly beneficial impact	Negligible to moderate long-term adverse impacts
Cultural and Tribal Cultural Resources	None – no historic properties affected	None

Source: Draft EA Doolittle Power Station Repair & Upgrade, 2022

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AFB	Air Force Base
AFI	Air Force Instruction
AMM	Avoidance and Minimization Measure
AT&T	American Telephone and Telegraph Company
BCC	Birds of Conservation Concern
BMP	Best Management Practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO2e	Carbon dioxide equivalent
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ES	Executive Summary
ESA	Endangered Species Act
ERP	Environmental Restoration Program
FE	Federally-Listed Endangered Species

Acronym	Definition
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FR	Federal Review
FRAQMD	Feather River Air Quality Management District
FT	Federally-Listed Threatened
FY	Fiscal Year
GHG	Greenhouse Gas
GIS	Geographic Information System
MBTA	Migratory Bird Treaty Act
in	Inch
IPaC	Information for Planning and Consultation
MAPS	Monitoring Avian Productivity and Survivorship
MPH	Miles Per Hour
MW	Megawatt
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NH_3	Ammonia
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO_X	Nitrogen oxides
OSHA	Occupational Safety and Health Act

Acronym	Definition
PAVE PAWS	Perimeter Acquisition Vehicle Entry Phased-Array Weapons System
Pb	Lead
PG&E	Pacific Gas & Electric
$PM_{2.5}$	Particulate Matter equal to or less than 2.5 microns in diameter
PM_{10}	Particulate Matter equal to or less than 10 microns in diameter
ppb	Part(s) per billion
ppm	Part(s) per million
PV	Photovoltaic
Q-100	100-year
QSD	Qualified SWPPP Developer
RCRA	Resource Conservation and Recovery Act
SE	State Endangered
SHPO	State Historic Preservation Officer
Site OT017	Site 17
SoC	Federal Species of Concern
SOP	Standard Operating Procedure
SO_X	Sulfur oxides
SR	State Road
SSC	State Species of Special Concern
ST	State-Threatened
SWPPP	Storm Water Pollution Prevention Plan
TSCA	Toxic Substances Control Act
USAF	United States Air Force
USFWS	United States Fish and Wildlife Service
U.S.C.	United States Code

Acronym	Definition
UW	Universal Waste
VOC	Volatile organic compound
VPFS	Vernal Pool Fairy Shrimp
WoUS	Waters of the U.S.

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1.0 INTRODUCTION AND PURPOSE & NEED FOR ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) defines the scope of the Proposed Action as well as all reasonably foreseeable alternatives.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code (U.S.C.) 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500−1580; and United States Air Force (USAF) policy and procedures (32 CFR Part 989).

1.2 SITE DESCRIPTION AND BACKGROUND

The Proposed Action would be constructed on approximately 9.5 acres of undeveloped landscape adjacent to Doolittle Electrical Power Substation and the water tower east of Doolittle Road (see Figure 1-1). The area is on the Brown's Valley 7.5-minute U.S. Geological Survey topographic quadrangle. There is an existing 5-strand barbed wire cattle fence on the northeast portion of the Proposed Action. There is also a man-made drainage ditch with an underground pipe originating from the water tank and routed towards the stream channel and wetlands. The tank pipe ends with a flapper eight inches beyond a concrete retainer wall. The drain pipe is used only if the water tower experiences damage and required draining. After going through the drain pipe, water then drains through the culverts under Grumman Avenue toward the storm water drainage ditch and then moves through culverts under Doolittle Drive.

The vegetation in and around the Action Area is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides.

The topography of the area is moderately sloped, ranging from 2% to 8%. The Proposed Action would occur on a largely undisturbed area of upland annual grassland. The site slopes east and south towards the drainage that runs beneath Grumman Avenue.

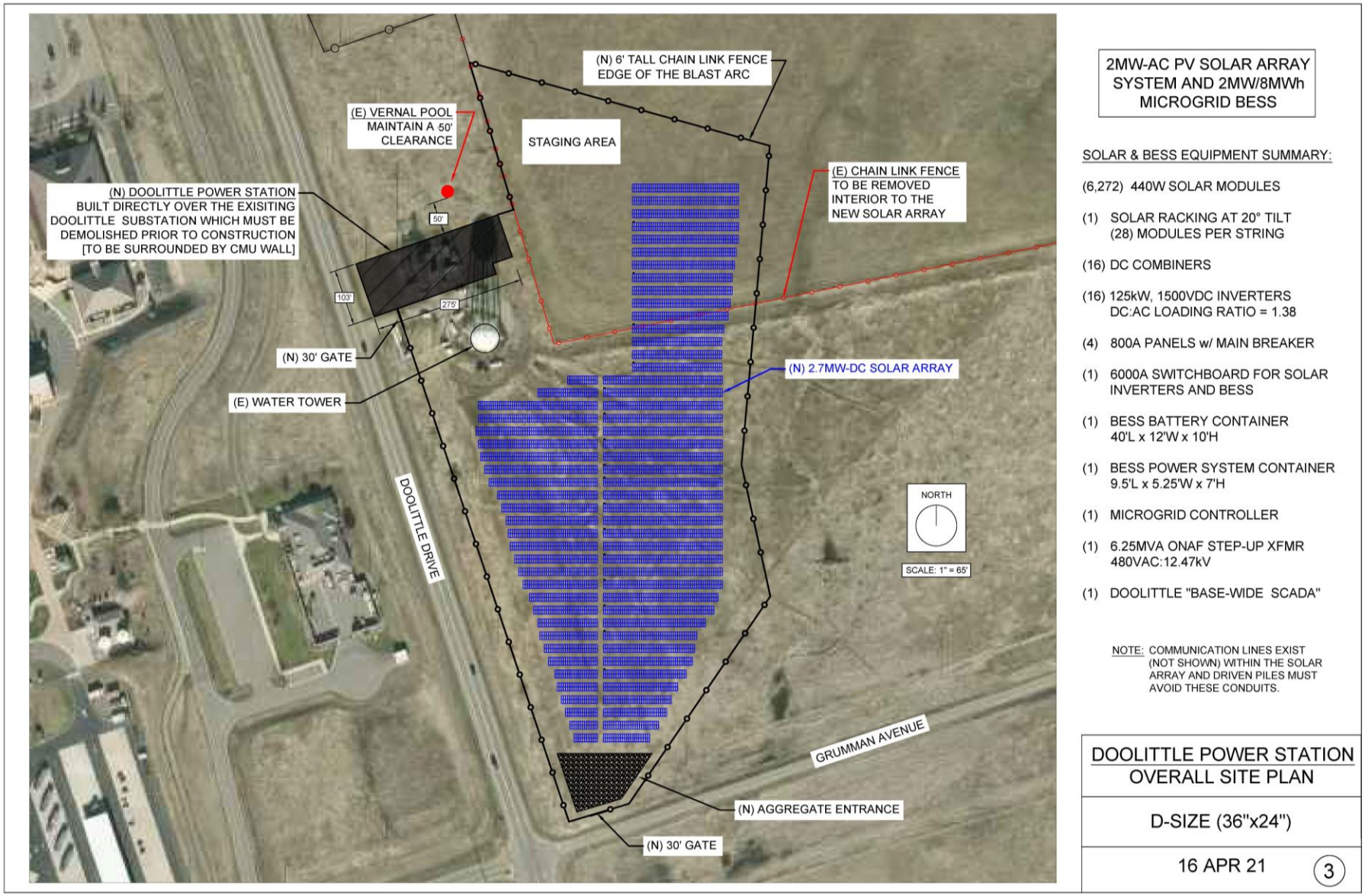

Figure 1-1: Proposed Location of Doolittle Power Station– Aerial View

Beale AFB

Beale is located in Yuba County, midway between San Francisco and Carson City, Nevada, approximately 40 miles north of the city of Sacramento. The base is host to The 9th Reconnaissance Wing (RW) which is responsible for providing national and theater command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. To accomplish this mission, the RW is equipped with the nation's fleet of U-2 and RQ-4 reconnaissance aircraft and associated support equipment. The RW maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to theater contingencies. In addition to the reconnaissance aircraft, the RW operates the U-2RT reconnaissance trainer and T-38 jet trainer. The RW is also responsible for the Air Force's entire high-altitude reconnaissance fleet composed of three U-2 squadrons; two Global Hawk unmanned aerial vehicle squadrons, four groups and three overseas operating locations.

Beale is home to Global Hawk (GH) Mission, which requires 24/7/365 access to power. It is located by the flight line with primary power source from circuit D9 fed from Doolittle substation. The substation is served radially from Grass Valley. There is a total of approximately 6 miles of 60 kV wood pole line comprised of the following:

a) Approximately 3 miles of 60 kV wood pole line from Grass Valley to green pole 60-58;
b) Approximately 0.4 miles from corner pole 60-58 to corner pole 60-65 on C street; and
c) Approximately 3 miles from corner pole 60-65 to Doolittle Substation.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of the proposed action is: 1) to ensure electric power supporting all facilities on the Flight Line, the Munition Support Squadron and Global Hawk Campus at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the Global Hawk Campus in the event of an electrical outage.

Currently, the hangars & buildings on the flight line, Munition Support Squadron and Global Hawk Campus at Beale AFB are at risk of periods of non-operation in the event of a power failure subsequently affecting the missions with not having reliable power & backup sources.

Mission Requirement

All of the desired aspects reviewed of the proposed new Doolittle Power Station would meet all the power requirements of the flightline once all facilities have been constructed, repaired, and upgraded as planned along with the need for a PV Solar Array, Microgrid and Battery Storage to provide greater resiliency for the GHC/MCS Pad. The GHC/MCS Pad has several facilities including the Global Hawk Operations Center (GHOC), MCS, Technical Control Facility (TCF), maintenance, administration, and warehouse buildings. The MCS has the highest demand for power as part of a new weapon system (the ground pilot station for the RQ-4 aircraft). The proposed action would result in a more effective actionable multiple discipline intelligence derived from the sensors on board the aircraft transferring information to a variety of ISR

platforms, subsequently to combatant commands, numerous Air Forces and National command authorities globally, 24/7.

This project ensures compliance with all UFC and NEC Electrical Codes, Department of Defense Instruction (DoDI) 4170.11, Energy Resilience update to be, 'not limited to traditional standby and emergency generators', and the direction, 'when selecting distributed and renewable energy systems...for energy resilience, they shall be properly designed to have the ability to prepare for and recover from energy disruptions that impact the mission impact assurance.'

1.4 SUMMARY OF KEY ENVIRONMENTAL QUALITY COMPLIANCE REQUIREMENTS

1.4.1 National Environmental Policy Act

NEPA 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 decision-makers 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 CEQ, which 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 decision-making process. This process evaluates potential environmental consequences associated with a Proposed Action and considers alternative courses of action.

AFI 32-1015, *Integrated Installation Planning*, and 32 CFR Part 989, EIAP provide policy and procedures for Department of Defense (DoD) officials to review environmental considerations when evaluating major DoD actions. The directive requires DoD components to integrate the NEPA process during the initial planning stages of proposed DoD actions to ensure that planning and decisions reflect environmental values.

AF-MAN 32-7003, *Environmental Conservation* implements Air Force Policy Directive (AFPD) 32-70, *Environmental Considerations in Air Force Programs and Activities*, and supports Department of the Air Force Instruction (DAFI) 32-7001, *Environmental Management*. It provides guidance and procedures on how to implement NEPA for cultural resource and natural resource programs at Air Force installations via EIAP.

USAF AFPD 32-70 states that the USAF would comply with applicable federal, state, and local laws and regulations, including NEPA. The USAF implementing regulation for NEPA is Air Force Instructions (AFI) 32-1015, *Integrated Installation Planning*.

Upon completion of the EA review and consultation process, the proposed project sponsor, USAF, will determine whether the Proposed Action would result in significant impacts to environmental or other resources. If significant impacts are expected to result, USAF would then be required to decide whether to move forward with the development of an EIS or to abandon the

Proposed Action altogether. If no significant impacts are expected, then USAF can publish a FONSI and move forward with the Proposed Action as such.

1.4.2 Applicable Environmental and Regulatory Compliance

Regulatory requirements relevant to the Proposed Action have been identified for the proposed project. Regulatory requirements under the following laws, among others, are assessed:

- National Environmental Policy Act of 1969, as amended
- Noise Control Act of 1972
- Clean Air Act (CAA) of 1970
- Clean Water Act (CWA) of 1972
- National Historic Preservation Act of 1966, as amended
- Archaeological Resources Protection Act of 1979, as amended
- Endangered Species Act (ESA) of 1973, as amended
- American Indian Religious Freedom Act (1978), as amended
- Native American Graves Protection and Repatriation Act of 1990, as amended
- Bald and Golden Eagle Protection Act of 1940, as amended
- Federal Environmental Pesticide Act of 1972
- Federal Land Use Policy and Management Act
- Federal Noxious Weed Act of 1974
- Migratory Bird Treaty Act of 1918
- Soil and Water Conservation Act
- Sikes Act, as amended
- Resource Conservation and Recovery Act (RCRA) of 1989
- Toxic Substances Control Act (TSCA) of 1970
- Occupational Safety and Health Act (OSHA) of 1970
- Intergovernmental Coordination Act of 1976

The selected alternative must also comply with the following:

- Executive Order (EO) 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 11514, *Protection and Enhancement of Environmental Quality*
- EO 11593, *Protection and Enhancement of the Cultural Environment*
- EO 13007, *Protection and Accommodation of Access to "Indian Sacred Sites"*
- EO 13287, *Preserve America*
- EO 11987, *Exotic Organisms*
- EO 13112, *Exotic and Invasive Species*
- EO 13175, *Consultation and Coordination with Indian Tribal Governments*
- EO 13287, *Preserve America*
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*

- DoD USFWS Memorandum of Understanding, Pursuant to EO 13186, September 5, 2014
- EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risk*s
- EO 12372, *Intergovernmental Review of Federal Programs*
- 14 Code of Federal Regulations [CFR] Part 1.1

NEPA requirements help to ensure that environmental information is made available to the public during the decision-making process and prior to actions being taken. A 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. CEQ regulations implementing NEPA specifically state, "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping." The Intergovernmental Coordination Act and EO 12372, Intergovernmental Review of Federal Programs, require federal agencies to cooperate with and consider state and local views when implementing a federal proposal. 40 CFR 1501.5−1501.6, Cooperating Agencies, and 32 CFR 989.9, Cooperation and Adoption, support interagency and intergovernmental coordination. Beale AFB will comply with the spirit and intent of this guidance and will implement a coordination process to facilitate evaluation of the Proposed Action.

1.5 COORDINATION FOR ENVIRONMENTAL PLANNING AND PUBLIC INVOLVEMENT

The USAF is the responsible agency for the Doolittle Power Station Repair & Upgrade Project NEPA process, development of the EA, and will be the signatory on all final documents.

1.5.1 Coordination for Environmental Planning and Public Involvement

Beale AFB will notify relevant federal, state, and local agencies about the Proposed Action and Alternatives. The coordination process will provide Beale AFB the opportunity to cooperate with and consider state and local views in implementing the Proposed Action or Alternatives. Coordination letters containing a description of the Proposed Action and Alternatives were sent to 4 federal, 9 state, and 6 local agencies on June 23, 2022 (Appendix A). The comment period lasted for 15 calendar days. Agency responses have been incorporated into the analysis of potential environmental impacts as part of the development of the EA.

A Notice of Availability will be published in the Marysville Appeal-Democrat with the release of the Draft EA and FONSI. The Notice of Availability initiated the 15-calendar day public review period for the Draft EA and FONSI. All public comments received during the public comment period will be reviewed and included in an appendix to the Final EA. All substantive comments will be incorporated into the analysis, as appropriate.

1.6 ORGANIZATION OF THIS DOCUMENT

This EA is organized into six chapters and includes four appendices as follows:

- *Chapter 1* provides the background information, proposed project location, and purpose & need for the Proposed Action.
- *Chapter 2* contains a description of the Proposed Action and alternatives, including the No Action Alternative and alternatives eliminated from further discussion.
- *Chapter 3* contains a description of the environmental resources and baseline conditions that could potentially be affected by the Proposed Action and alternatives and will present an analysis of the potential environmental consequences of implementing the Proposed Action and the No Action Alternative.
- *Chapter 4* includes an analysis of the potential cumulative and other effects to the surrounding area.
- *Chapter 5* lists the preparers of this EA.
- *Chapter 6* lists the references used in the preparation of this document.
- *Appendix A* provides the list of agencies and tribes for the initial coordination, the coordination letters, and any responses received.
- *Appendix B* provides the Notices of Availability.
- *Appendix C* provides details of the Air Quality Conformity Analysis.
- *Appendix D* describes the Avoidance and Minimization Measures that would be implemented as part of the Doolittle Power Station Repair & Upgrade Project.
- *Appendix E* provides the Section 106 consultation records.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action involves the construction of high voltage switching in a switch yard upon the demolition of the existing Doolittle Substation which includes installing two new 15MVA Oil Natural Air Forced (ONAF) 60kV/12.47kV transformers (T1 & T2 on Figure 2-2) to replace the two existing transformers; a new 6.25 MVA ONAF 12.47kV/480V transformer (T3 on Figure 2-2); a new 150kVA, 480V-208Y/120V transformer (T4 on Figure 2-2); switch gears; and a control room (20 foot wide x 30 foot long x 10 foot tall) in a new Doolittle Substation constructed over and east of the existing substation area as shown in the aerial view on Figure 1-1. Additionally, the construction of a new 2-megawatt (MW) photo voltaic (PV) solar array with inverters and a 4 MW smart microgrid with battery energy storage system (BESS) would be engineered to store and distribute renewable energy through the primary circuitry to the Global Hawk Campus (GHC) and Mission Control Station (MCS) Pad. This results in an electrical power load reduction and accelerates proposed efficiency for the load demands of the Global Hawk critical facilities.

The PV solar array farm would be constructed in approximately 9.2 acres shown in an aerial view of Figure 2-1, northeast, east and south of the Doolittle Power Station, south of the Doolittle Water Tower and west of the wetlands area. The proposed project location was selected because it is a reasonable distance away from the flight line (to minimize glint and glare produced by the sun's reflection from the panels) and is relatively close to the new Doolittle Power Station (nearest the GHC/MCS Pad). The solar panels of the PV array system would be installed at an angle facing southward to maximize sun exposure and potential power generation. The Solar Panel rows would be separated an optimal distance to ensure utility vehicles can access the panel assemblies during installation and maintenance. There would be allowable space at each end of the solar panel rows, within the designated boundaries, for maintenance vehicle access. These access areas/routes, although drivable, would be managed with native low growing vegetation to prevent surface erosion.

The five strand barbed wire fence in the north eastern part of the Proposed Action would be relocated for the installation of the PV solar panels on approximately 3.5 acres, located northeast and east of the Doolittle Substation (Figure 1-1). Preparation for the installation of the PV solar array would include some grading to lay a suitable aggregate (i.e. gravel, crushed granite, etc.) in the locations shown in Figure 2-1 to provide access for maintenance vehicles and building structures.

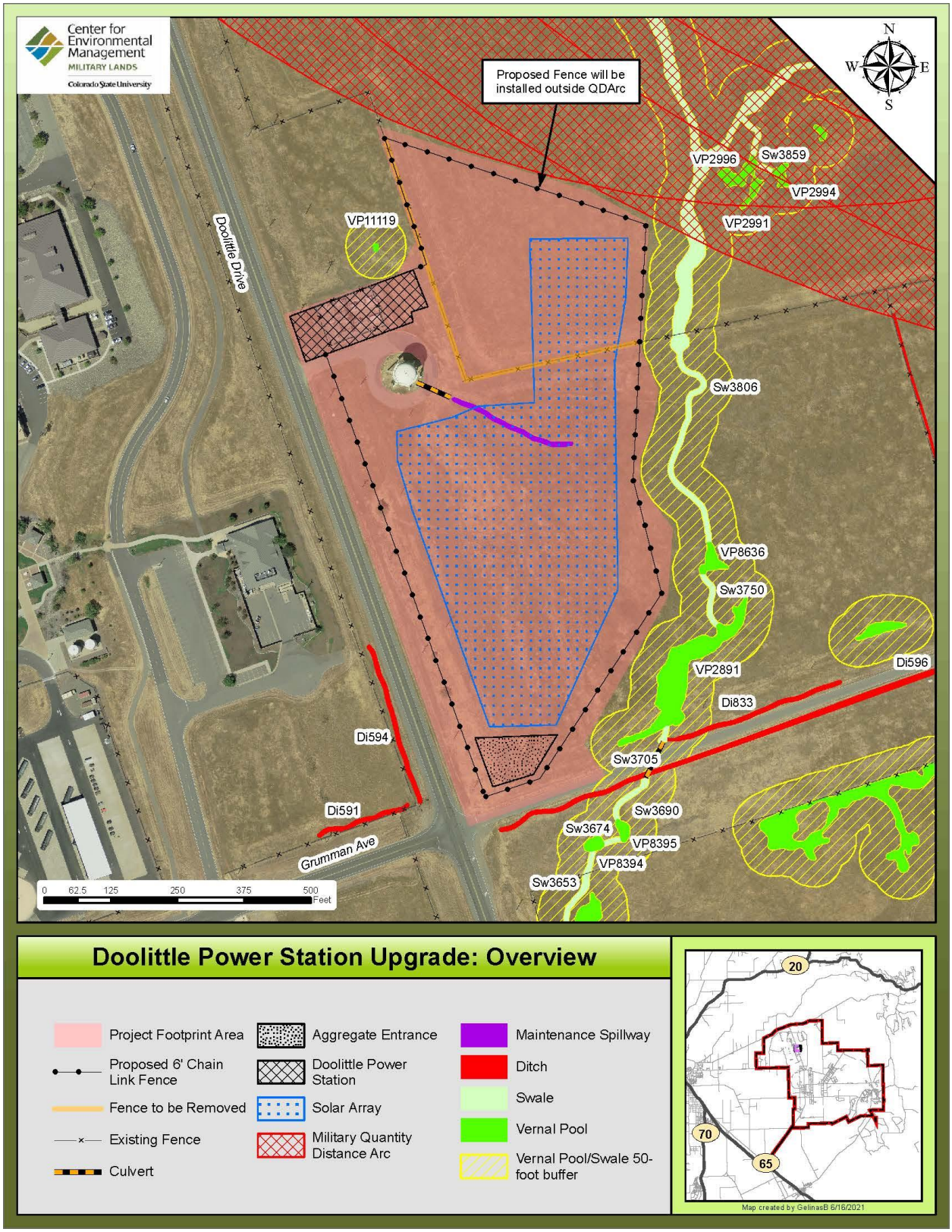

Figure 2-1: Environmentally Approved Project Footprint – Aerial View

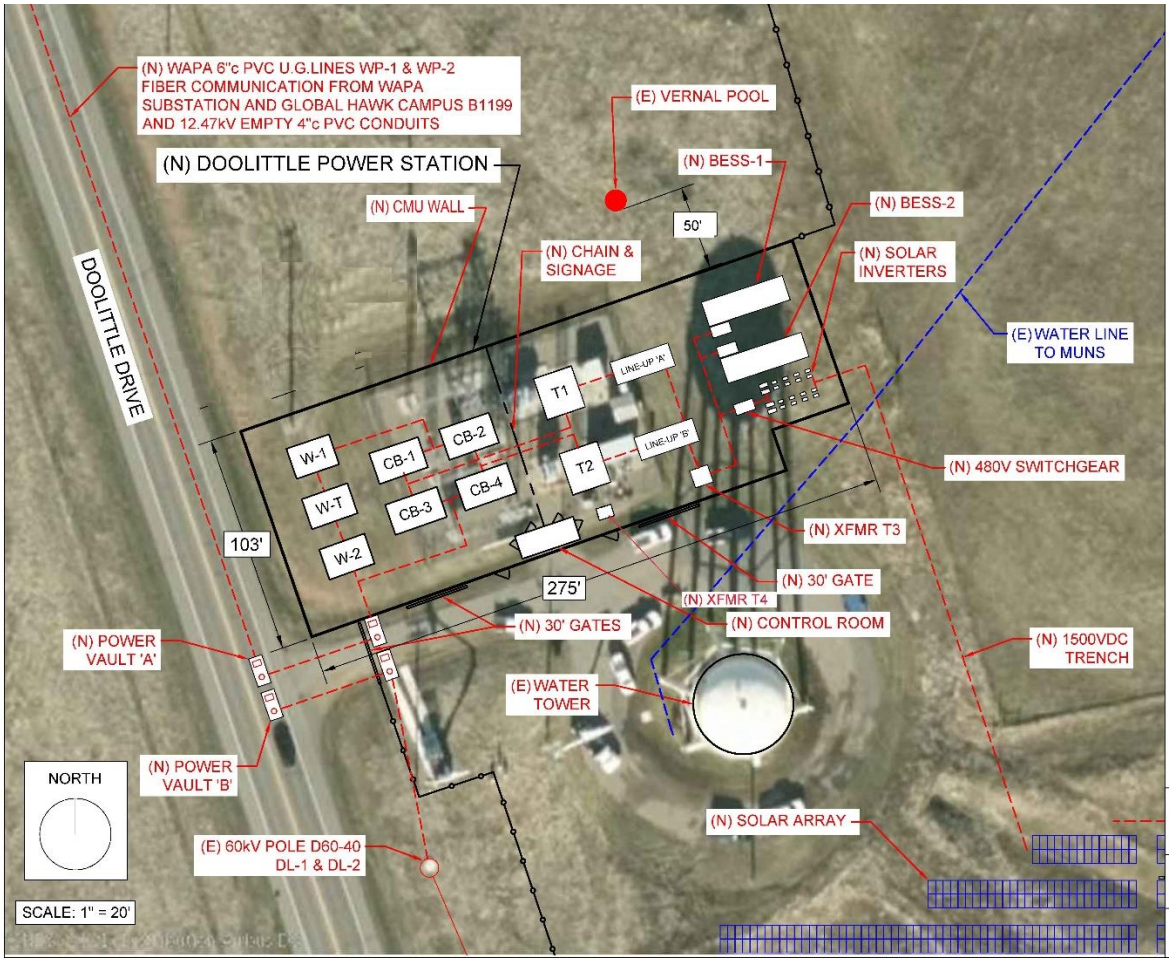

Figure 2-2: Doolittle Power Station Equipment Layout

There is a man-made drainage ditch with an underground pipe originating from the water tank and routed towards the wetlands. The tank pipe ends with an 8 inch flapper beyond a concrete retainer wall. It is for emergency use only if the water tower experiences damage. The drainpipe would remain upslope of the proposed solar array and would include a diverter to reduce water flow pressure. The drainpipe would also be rerouted so that it drains into the ditch that's parallel to Doolittle Dr.

Preparation of the acreage would include covering the extended pipe to level and grade the portions around the designated solar panel rows and the Doolittle Power Station to provide passageways for maintenance and emergency vehicles to pass and a hardscape apron to be an entrance south of the Solar Farm, hardscape pads to install PV Inverters and transformers in specific locations and hardscape driveways to enter the PV array and enter the Doolittle Power Station, (Figure 1-1). Underground conduit and cabling would be installed 30 inches and 36 inches deep to interconnect each panel row, inverters, transformers, and the BESS switchgear. Revegetation of disturbed areas would be accomplished with native plants which are tailored to pollinators and are low in height so as to reduce the need for mowing/vegetative maintenance. Plant composition for shaded and full sun areas would be selected accordingly.

The Doolittle Power Station with the switch yard, smart microgrid, BESS, and electrical distribution switchgear would be installed over the old Doolittle Substation site and additional area adjacent and east (95 feet by 230 feet) constructed with concrete pads to mount the electrical distribution equipment with a 6-foot high CMU wall circumventing the Doolittle Power Station, strategically near the PV array system (see footprint on Figure 2-2). The electrical power storage, switchgear, control room and distribution panels would be installed in the Doolittle Power Station with underground conduits and power cables interconnected to the solar farm installation, WAPA substation, and Global Hawk Campus.

Specific layout of the modules on the support structures within the designated boundary (Figure 2-2) would be determined during design and would not alter environmental effects disclosed in the environmental analysis.

The PV solar farm power requirements would be estimated at 1 MW/5 Acres. Total power demand for the Global Hawk equates to 1.8 MW.

PROJECT DESIGN:

SITE DEMOLITION

Site demolition would include existing chain link & barbed wire fence, electrical power equipment and supporting structures, power cabling, some pavement removal to construct paved entrances, and existing water tank drainage appurtenances removal in the ditch line.

Waste Disposal. Project demolition and construction waste would be disposed of off base at a location approved by the Contracting Officer that follow Beale AFB BMPs provided by 9 CES. Beale Air Force Base does not have any active landfills.

Haul Route. The haul route path would be coordinated with Beale AFB 9 CES and approved by the Contracting Officer. Installation roadways sustaining damage from construction activities would be repaired at the Contractor's expense after project completion.

SITE DEVELOPMENT

Site Access, Gates and Fencing: Site access would include a loose gravel ingress/egress (30 feet by 10 feet each) on both Doolittle Drive and Grumman Avenue. Access considerations include sight distance safety and emergency and utility vehicle fit in accordance with AASHTO, state, local and industry standards.

Building, Doolittle Power Station, PV Array and Appurtenant Equipment Siting. The Substation, West Switchyard, BESS, PV arrays, and PV array-related equipment (BESS, inverters, transformers, panels, etc.) locations would be sited during the design phase by the Contractor and approved by Beale AFB and the Contracting Officer prior to construction.

The PV array panels would be installed at an optimal angle facing the southern direction to maximize exposure to the sun. The solar panel rows would be separated an optimal distance apart to allow emergency vehicle clearance and utility vehicles for the installation and maintenance of the solar panel assemblies.

Parking Area and Site Circulation. Two new paved parking spaces would be included for utility vehicles near the existing Water Tower. ABA compliant spaces would not be required to accommodate facility personnel. Parking areas would be required to comply with the requirements of *UFC 4-010-01*.

Grading. The Contractor would design the grading of the site and elevations of new pavement. The BESSY concrete pads would be a minimum of 6 inches above the adjacent finish grades.

Site Drainage Concept. Drainage would generally drain away from the BESSY equipment pads with paved areas sloping a minimum of 1%; earth areas a minimum of 1% to 2%; earth areas for the first 10 feet around the building 5%; and pipes, gutters, and swales a minimum of 0.5%. Contractor would submit a drainage plan with design submittal.

Parking Area. The parking area would be graded with a minimum of 1% slope for positive drainage. Provide 90 degree parking stalls with a maximum front-to-rear 5% gradient and a maximum side-to-side slope of 1.5% gradient to avoid ponding of surface water.

Low-Impact Development (LID). Site grading for the project would be designed to maintain the predevelopment hydrology. The Contractor would incorporate the LID for the site storm drainage system design, per *UFC 3-210-10, Figure 2-1, Option 2*. The Contractor would include the hydrology analysis of the area for the pre-development and post-development conditions in the design analysis with supporting calculations, including annotated post and pre-development drainage area maps. Drainage area maps would include divides with respective area acreage, ground cover data, time-of-concentration flow path data, etc.

SITE IMPROVEMENTS

Pavement Design. The Contractor would determine the pavement (AC and aggregate base course sections) design requirements after their geotechnical investigation has been completed. The Contractor would complete the investigation and provide copies of these documents to USACE prior to site design commencement.

Concrete Exterior Slab and Paving. The Contractor would design and construct concrete slabs, pavements, etc. based on the recommendations of their geotechnical engineering analysis.

Equipment Enclosures. Mechanical/electrical equipment would be mounted on concrete pads with at least 4-inch clearance to grade. Equipment included in the BESSY would require a security fence and gate to enclose the equipment. The BESSY and equipment pads would be located in accordance with the minimum AT/FP requirements.

Storm Runoff and Drainage System. Contractor would perform a complete analysis taking into consideration existing and proposed conditions using the following criteria and design an acceptable surface or underground storm drainage system to handle storm water runoff where increase in impermeable surface would generate ponding around the BESS.

Design of surface drainage, underground drainage systems and storm water management facilities would be in accordance with the criteria noted in *UFC 3-201-01, UFC 3-210-10, HDS-*

5, Caltrans drainage manual, Beale Air Force Base Design Compatibility Guide, or the local regulatory agency with jurisdiction over the Installation — whichever is more stringent. The design would ensure that excess storm water runoff resulting from construction would not adversely affect surrounding sites. The storm drainage system could include but not limited to inlets, pipes, culverts, earth swales, concrete lined channels, splash blocks, etc.

Storm Drain Line Materials. Piping for storm drainage would be industry standard for the drainage of commercial facilities. Examples of acceptable piping material are: polyvinyl chloride (PVC) pipe, acrylinitrile-butadiene-styrene (ABS) pipe, reinforced concrete pipe, and corrugated metal pipe with corrosive soil considerations incorporated. Installation shall be per manufacturer's instructions or industry standards; whichever is more stringent. Drain structures such as inlets, catch basins, and manholes would be pre-cast. Rims, covers and grates for drain structures would be rated for H-20 traffic loading in traffic areas. Minimum design velocity of storm water underground systems would be 0.76 m/sec (2.5 ft/sec).

UTILITY

Fire Protection Water Service. A new fire service line is not required for the project since fire water requirements would be provided by existing hydrants.

Electrical. A 200 linear foot long trench with a width of 4 feet would be dug to install conduits for power and fiber cabling.

EARTHWORK

All borrow would be obtained off-base at the Contractor's expense from an off-site source acceptable to the Contracting Officer meeting gradation requirements of the Geotechnical Report. Soil would be tested for contaminants and approved by 9 CES/CEIE prior to use. All excess materials would be tested for contaminants and disposed of at an approved location. The Contractor would submit material certification for approval prior to placement.

The electrical power storage batteries, switchgear, and panels would be installed in the building with underground conduits and power cables installed and interconnected to each Solar Farm installation.

494,885 feet^2 of grading, 11,800 feet^3 of trenching/excavation, and 900 feet^2 would be required under the Proposed Action. 149.5 cubic yards of material would need to be hauled off-site.

2.2 NO-ACTION ALTERNATIVE

The CEQ regulations require consideration of the No-Action Alternative for all Proposed Actions. The No-Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared

Under the No-Action Alternative, the Doolittle Power Station and associated structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing

Global Hawk Mission at Beale AFB and reliance on fossil fuel powered generators would continue.

2.3 SITE SELECTION STANDARDS

In accordance with 32 CFR Section 989.8(c), selection standards were developed to establish a means for determining the reasonableness of an alternative and whether an alternative should be carried forward for further analysis in the EA. Consistent with 32 CFR Section 989.8(c), the following selection standards meet the purpose of and need for the Proposed Action and were used to identify reasonable alternatives for analysis in the EA:

- Ability to interconnect to the primary circuitry directly connects to the Flightline, Munition Support Squadron , & Global Hawk Campus;
- Level (or close to the) ground with a sloped terrain to allow for natural storm water runoff
- Reasonable distance away from Flightline to minimize glint and glare produced by the sun's reflection off of the panels;
- Relatively close to the Doolittle Substation;
- Relatively close to the 60kV WAPA transmission system on base for interconnection purposes

2.4 ALTERNATIVES ELIMINATED FROM FURTHER ANALYSIS

Two alternatives were considered and eliminated from further consideration because one or more of the selection criteria were not met. These alternatives are described below.

Additional 5MVA Distribution Substation

An additional 5MVA distribution substation was considered to make up for power deficiencies. This would be less expensive than replacing the existing substation which would meet the power demand required along with an extended service life. However, this approach does not update the existing substation and requires re-routing existing and adding feeders. This results in added maintenance for the 9 CE Electrical Shop, not a feasible alternative.

Western Area Power Administration (WAPA) Substation

The WAPA Substation would service the assets by replacing the power of the existing Doolittle Substation (F1149) with low maintenance costs overtime. However, the total replacement incurs the installation of new feeders for every asset along with the complexity of environmental constraints would result in being cost prohibitive and not meeting the current schedule for the additional power required in the near future.

Original Proposal

The original proposal for the solar array involved having solar panels on both sides of the nearby wetland features located just east of the Proposed Action. Access roads were also proposed to cross the wetland features. This design was not conducive with the nearby environment and was modified to have the project be located on only one side of the wetland features with no aspect of the project coming within 50 feet of the nearby wetlands.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The affected environment reviews the environmental setting or general environmental conditions of the proposed project area. It describes the environmental baseline against which the environmental effects can be evaluated. In compliance with NEPA and other relevant regulations, only those resource areas considered potentially subject to impacts, and with potentially significant issues, are discussed below. This section includes discussions of air quality; airspace management & use; land use & agriculture; soil resources; water resources; biological resources; hazardous materials, hazardous wastes, & non-hazardous wastes; utilities & infrastructure; and cultural & tribal cultural resources.

The following sections present a description of the environmental resources and baseline conditions that could potentially be affected from implementing the Proposed Action. In addition, an analysis of the potential environmental consequences of implementing the Proposed Action, as well as the No Action Alternative, is also presented.

The impact analyses consider the alternatives discussed in Chapter 2 that have been identified as reasonable for meeting the purpose and need for action. Those alternatives include:

Proposed Action - The Proposed Action would include the construction of a PV solar array, a BESS with a smart microgrid, and a new replacement substation.

No Action Alternative - Under the No Action Alternative, the Doolittle Power Station and PV solar array would not be constructed—greater resiliency would not be provided to the electrical power distribution system required for supporting the growing Global Hawk Mission at Beale AFB and the affected missions would remain vulnerable to disrupted power outages.

Types of Impacts

The criteria below were used to analyze impacts on the resources. For the purposes of this report, the existing conditions are used as a baseline comparison for the Proposed Action or No Action Alternative impacts.

To further clarify the nature of the various impacts upon each resource in the Environmental Consequences section of this EA, the following terms were used in the analysis and are defined.

Short-Term or Long-Term - These characteristics would be determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts would be those that would occur only with respect to a particular activity, for a finite period, or only during the time required for proposed construction or installation activities. Long-term impacts would be those that would be more likely to be persistent and chronic.

Direct or Indirect - A direct impact would be caused by and occurs contemporaneously at or near the location of the Proposed Action. An indirect impact would result from the Proposed Action and might occur later in time or be farther removed in distance but still be a reasonably

foreseeable outcome of the action. For example, a direct impact of erosion on surface water might include sediment-laden waters in the vicinity of the action, whereas an indirect impact of the same erosion might lead to lack of spawning and result in lowered reproduction rates of indigenous fish in nearby waters.

Negligible, Minor, Moderate, or Major - These relative terms are used to characterize the magnitude or intensity of an impact from a proposed activity. Negligible impacts would generally be those that might be perceptible but would be at the lower level of detection. A minor effect would be slight, but detectable. A moderate impact would be readily apparent. A major impact would be one that would be severely adverse or exceptionally beneficial.

Adverse or Beneficial - An adverse impact would result in unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact would result in positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

Table 3-1 provides a brief summary and comparison of potential impacts under each alternative.

Table 3-1: Comparison of Environmental Consequences

Resource Area	Proposed Action	No Action Alternative
Air Quality and Greenhouse Gasses	• Temporary, negligible adverse impacts • Long-term, moderate beneficial direct and indirect impacts	Intermittent, minor, adverse impacts
Airspace Management and Use	Little to no impact.	None.
Land Use and Agriculture	**Land use:** None. **Agriculture:** Negligible.	**Land Use:** None **Agriculture:** None
Soil Resources	Negligible long-term adverse impact	None
Water Resources	**Surface Water:** negligible and indirect adverse impacts **Groundwater:** None **Wetlands/Other Waters:** Negligible indirect adverse impacts	**Surface Water:** None **Groundwater:** None **Wetlands:** None
Biological Resources	**Vegetation:** • Temporary, minor direct adverse impacts • Long-term, minor direct beneficial impacts **Wildlife:** • Permanent loss of 0.56 acres of grassland habitat • Temporary, minor, indirect adverse impacts to wildlife habitat • Long-term, minor, indirect beneficial impacts to invertebrate pollinators **Threatened and Endangered Species:** • Temporary, negligible indirect adverse impacts • Potential for future indirect impacts – negligible with effective AMMs • Long-term, moderate, indirect beneficial impacts to monarch butterflies and other natural pollinators	**Vegetation:** None **Wildlife:** None **Threatened and Endangered Species:** None
Hazardous Materials & Wastes and Non-Hazardous Wastes	Short-term negligible adverse impacts.	None
Utilities and Infrastructure	• Temporary, negligible adverse impact • Long-term and significantly beneficial impact	Negligible to moderate long-term adverse impacts
Cultural and Tribal Cultural Resources	None – no historic properties affected	None

3.1 SCOPE OF THE ANALYSIS

This section describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the Proposed Action or the No Action Alternative and the environmental consequences associated with them. Based on the scope of

the Proposed Action, issues with no impacts or near no impacts were identified through a preliminary screening process. In accordance, the following describes those resource areas not carried forward for a detailed analysis, along with the rationale for their elimination. The following resources would not be affected from the Proposed Action and are not discussed in detail in this EA:

- ***Coastal Zone Management***: Beale AFB is not located within or near the coastal zone; as such, there would be no measurable change/impacts to coastal zone management area.

- ***Recreation***: The project area is not used for recreation, consequently there would be no measurable changes/impacts to recreation from the Proposed Action.

- ***Socioeconomic Resources, Population/Housing, Public Services, and Environmental Justice***: The Project would not change population in the region or create permanent new jobs; therefore, it would have no effects on housing, community resources, or economic activity. It would not result in a substantial shift in population trends or notably affect regional employment, earnings, or community resources; therefore, it would have no effects on economic or demographic indicators in the region. The Project would not result in population growth or associated changes in demand for public services. Public services are not evaluated further in this EA. This Project would not cause impacts to human populations (low income, minority, or otherwise). Environmental Justice is not evaluated further in this EA.

- ***Wildfires***: The Proposed Action would not increase the risk of wildfire in the area. The Proposed Action would replace non-native vegetation with native vegetation which stays green longer and would reduce fuel load. Faulty and dilapidated electrical infrastructure would be entirely replaced under the Proposed Action which would reduce the risk of equipment failure which could spark and cause a wildfire. Due to the beneficial reduction of possible wildfire events from the Proposed Action rather than adverse impacts, further discussion is not needed on wildfires.

- ***Noise***: Operation and maintenance of the Doolittle Power Station as well as construction of the project would not result in any activities that would generate substantial temporary or periodic increases in ambient noise levels. Noise is not carried forward into further analysis.

- ***Safety and Occupational Health***: The Proposed Action was designed to be outside of any quantity-distance (QD) arcs. Risks associated with systems maintenance would be negligible because solar PV arrays are benign systems with no moving parts. Proper execution of safety & occupational health BMPs would result in no adverse impacts during construction if they're effectively carried out. Further, the frequency of unsafe electrical maintenance would be reduced which would result in beneficial impacts to maintenance personnel safety. Therefore, Safety and Occupational Health are not carried forward into further analysis.

- ***Transportation and Traffic***: There would be an increase in vehicle traffic associated with construction of the Project, but no perceptible increase in vehicle traffic associated with the operation and maintenance of the Doolittle Power Station. The anticipated impact to vehicular transportation and traffic is anticipated to have no impact and therefore neither resource is carried forward in analysis.

- ***Floodplains***: The Proposed Action is not within a floodplain, the proposed action would not result in increased peak flows that could affect floodplains downstream, and would therefore not have any impact on floodplains.

- ***Geological and Mineral Resources***: The Proposed Action is not located within an active seismic region and there are no active mining claims or mining activities allowed on Beale AFB. The Proposed Action would also not be digging deep enough to even have the potential of impacting these resources. The site is not located in an area undergoing fluid withdrawal that could generate a potential subsidence effect. In general, construction, operation, and maintenance of the Proposed Action would not induce seismic activity, nor would it affect any of the economically-viable minerals in the applicable area.

3.2 AIR QUALITY AND GREENHOUSE GASSES

This section characterizes the existing conditions of the air quality environment in the Project area, specifically the current concentrations of criteria pollutants in the air basin. The study area for air quality related to this Project consists of the Feather River Air Quality Management District within the greater Sacramento Valley Air Basin. Beale AFB and the Project area are entirely within this air basin and air quality management district.

3.2.1 Definition of the Resource

In accordance with the CAA (42 U.S.C. 7409) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. Air quality depends on the types and quantities of atmospheric pollutants and pollutant sources in an area, as well as surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

National Ambient Air Quality Standards – Under the CAA, the U.S. Environmental Protection Agency developed National Ambient Air Quality Standards for pollutants that have been determined to affect human health and the environment (Table 3-2). The National Ambient Air Quality Standards set thresholds for the maximum allowable concentrations for six primary pollutants: particulate matter less than 10 microns in diameter (PM10) and less than 2.5 microns in diameter (PM 2.5), sulfur oxides, ozone, carbon monoxide, nitrogen oxides, and lead (40 CFR Part 50).

Table 3-2: National Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Federal Primary Standard	Secondary Federal Standard	Form
Carbon Monoxide	8 hours	9 ppm	None	Not to be exceeded more than once per year
	1 hour	35 ppm	None	
Lead	3 month rolling	0.15 µg/m^3	Same as primary	Not to be exceeded
	30-day average	None	None	
Nitrogen Dioxide	1 hour	100 ppb	None	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	53 ppb	Same as primary	Annual Mean
Ozone	8 hours	0.070 ppm	Same as primary	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
	1 hour	None	None	
PM2.5	24 hours	35 µg/m^3	Same as primary	98th percentile, averaged over 3 years
	1 year	12 µg/m^3	15 µg/m^3	Annual mean, averaged over 3 years
PM10	24 hours	150 µg/m^3	Same as primary	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide	1 hour	75 ppb	None	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3 hours	None	0.5 ppm	Not to be exceeded more than once per year

Notes: µg/m^3 = Microgram(s) per cubic meter
ppm = Part(s) per million
ppb = Parts(s) per billion
PM_{10} and $PM_{2.5}$ = particulate matter with size of 10 or 2.5 microns

Source: Environmental Protection Agency, 2020

California Ambient Air Quality Standards – The California Air Resources Board regulates air quality for the State of California, which includes regulating pollutants determined by the State of California to affect human health and the environment for the most sensitive populations (Table 3-3). Pollutants for which California Ambient Air Quality Standards (CAAQA) were established include PM 10, PM 2.5, ozone, nitrogen dioxide, sulfate, carbon monoxide, sulfur dioxide, visibility reducing particles, lead, hydrogen sulfide, and vinyl chloride.

California law continues to mandate California Ambient Air Quality Standards, although attainment of the National Ambient Air Quality Standards has precedence over attainment of the California Ambient Air Quality Standards due to federal penalties for failure to meet federal attainment deadlines. California law does not require that California Ambient Air Quality Standards be met by specified dates, as is the case with National Ambient Air Quality Standards.

Rather, it requires incremental progress toward attainment (California Air Resources Board 2020).

Table 3-3: California Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard	Form
Ozone	1 hour	0.09 ppm	Not to be exceeded
	8 hour	0.070 ppm	
PM10	24 hour	50 µg/m^3	Not to be exceeded
	Annual	20 µg/m^3	
PM2.5	Annual	12 µg/m^3	Not to be exceeded
Carbon Monoxide	1 hour	20 ppm	Not to be exceeded
	8 hour	9.0 ppm	
Nitrogen Dioxide	1 hour	0.18 ppm	Not to be exceeded
	Annual	0.030 ppm	
Sulfur Dioxide	1 hour	0.25 ppm	Not to be exceeded
	24 hour	0.04 ppm	
Lead	30-day average	1.5 µg/m^3	Not to be equaled or exceeded
Sulfates	24 hour	25 µg/m^3	Not to be equaled or exceeded
Hydrogen Sulfide	1 hour	0.03 ppm	Not to be equaled or exceeded
Vinyl Chloride	24 hour	0.01 ppm	Not to be equaled or exceeded

Notes: µg/m^3 = Microgram(s) per cubic meter
ppm = Part(s) per million
PM_{10} and $PM_{2.5}$ = particulate matter with size of 10 or 2.5 microns

Source: California Air Resource Board, 2020

General Conformity – The General Conformity Rule ensures that federal agency actions do not hinder air quality state implementation plans. Under the rule, federal agencies must work with state, tribal, and local governments in nonattainment or maintenance areas to ensure their actions conform to the applicable air quality implementation plan. General conformity does not apply for actions taken in attainment areas or where the emissions associated with the action are below specified de minimis levels. CAA conformity is ensured when a federal action does not result in a new violation of the National Ambient Air Quality Standards, result in an increase to any current violations of the federal ambient air quality standards, or delay the attainment timeline or any progress milestones toward achieving compliance. The minimum thresholds for General Conformity consideration are provide in Table 3-4.

Table 3-4: Minimum General Conformity Air Quality Thresholds

Criteria Pollutant	Status	Classification	De minimis limit (tpy)
Ozone (as volatile organic carbons or nitrous oxides	Nonattainment	Serious Severe Extreme Other (inside transport region) Other (outside transport region)	50 25 10 50 100
	Maintenance	Inside transport region All other	50 100
Carbon Monoxide (CO)	Nonattainment or maintenance	All	100
Sulfur Dioxide (SO_2)	Nonattainment or maintenance	All	100
NO_2	Nonattainment or maintenance	All	100
PM_{10}	Nonattainment	Moderate Serious Other classification	100 70 100
	Maintenance	All	100
$PM_{2.5}$	Nonattainment or maintenance	Moderate Serious Other	100 70 100
Lead	Nonattainment or maintenance	All	25

Notes: Units of measure for the de minimis limits are tons per year (tpy)
NO_2 = Nitrogen Dioxide
PM_{10} and $PM_{2.5}$ = particulate matter with size of 10 or 2.5 microns
Source & Date: Environmental Protection Agency, 2020

Attainment versus Non-Attainment – The Environmental Protection Agency classified the air quality in an air quality control region, or in subareas, according to whether the concentrations of criteria pollutants in ambient air exceed the National Ambient Air Quality Standards. Areas within each air quality control region are, therefore, designated as either "attainment", "non-attainment," "maintenance", or "unclassified" for each of the six criteria pollutants. Attainment means the air quality within an air quality control region is better than the National Ambient Air Quality Standards. Non-attainment indicates that criteria pollutant levels exceed National Ambient Air Quality Standards. Maintenance indicates that an area was previously designated non-attainment but is now meeting attainment; and an unclassified air quality designation by the Environmental Protection Agency means that there is not enough information to appropriately classify an air quality control region, so the area is considered unclassified.

Federal Prevention of Significant Deterioration – Federal Prevention of Significant Deterioration regulation applies to any new major stationary source or a significant modification to a stationary source that will result in greater emissions within attainment areas. Prevention of Significant Deterioration can also apply if the project results in net emissions increases to an existing major source (i.e. source with the potential to emit 250 tons per year of any criteria pollutant), is within 10 kilometers of a national parks or wilderness areas (i.e. Class I Areas), concentration of any regulated pollutant in the Class I area of at least 1 milligram per cubic meter or more (40 CFR 52.21[b] [23] [iii]. Class I areas include national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. Prevention of Significant Deterioration 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 Permitting – Title V of the CAA is the recon regulation that applies to stationary sources of air pollution. Title V requires state and local agencies to permit major stationary sources that have the potential to emit criteria pollutants and other hazardous air pollutants at levels greater than set thresholds. These major source thresholds are a function of the attainment status of an Air Quality Management District. Title V was enacted to provide regulatory control over major sources of air pollution and to be able to monitor their impact on air quality through reporting requirements. Beale AFB is not designated as a major source.

Greenhouse Gas Emissions – Greenhouse Gases are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common greenhouse gases include water vapor, carbon dioxide, methane and nitrous oxides. The burning of fossil fuels, through industrial and biological processes, primarily produce greenhouse gases.

3.2.2 Existing Conditions

The following sections describe the general climate surrounding Beale AFB and attainment with National Ambient Air Quality Standards.

Climate

Beale AFB is located in the interior valley between the California coast and the Sierra Nevada Mountain ranges and has a regional climate described as Mediterranean subtropical. Because Beale AFB is located inland of the Pacific Ocean, the valley experiences hot, dry summers and cool, wet winters. May through October is considered the dry season and is characterized by low precipitation and warm temperatures. November through April is considered the wet season and is characterized by moderate precipitation, cool temperatures, and high northerly and southerly winds.

In 2019, Beale AFB received an annual precipitation of 26.45 inches, with 98 percent of all rainfall occurring from November through May (Table 3-5). Summer temperatures average in the high 90s, sometimes reaching above 100 degrees Fahrenheit. July is typically the hottest and

driest month of the year (Table 3-5). Winters at Beale AFB are mild with average low temperatures in the 40s and 50s.

Table 3-5: 2019 Weather Data at Beale AFB

Month	Average Mean Temperature (°F)	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Total Precipitation (in.)
January	50	59	40	5.43
February	47	54	40	7.20
March	53	62	43	3.71
April	63	74	51	0.90
May	64	76	51	3.61
June	70	87	53	0.00
July	77	94	60	0.00
August	79	94	63	0.00
September	72	86	57	0.30
October	62	78	46	0.00
November	55	68	41	0.46
December	50	57	42	4.84

Notes: °F = Degree Fahrenheit
in. = inches
Source: Weather Underground, 2019

Air Quality Conditions

Beale AFB is located on federal jurisdictional land within Yuba County, California. The Feather River Air Quality Management District 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.

Air quality in Yuba County has been assessed by Feather River Air Quality Management District for compliance with the California Ambient Air Quality Standards and National Ambient Air Quality Standards. Three air quality designations can be given to an area for a particular pollutant:

- **Nonattainment:** Applies when air quality standards have not been consistently achieved.

- **Attainment:** Applies when air quality standards have been achieved.
- **Unclassified:** Applies when there is not enough monitoring data to determine whether the area is in nonattainment or attainment.

Relevant ambient air quality standards and their attainment status for Yuba County are listed in Table 3-6.

Table 3-6: Area Designations for Yuba County

Criteria Pollutant	Averaging Time	CAAQS Standard	CAAQS Yuba Attainment Status	NAAQS Standard	NAAQS Yuba Attainment Status
Ozone	1-hour	0.09 ppm	Attainment	--	--
	8-hour	0.070 ppm		0.070 ppm	Attainment
Carbon Monoxide	1-hour	20 ppm	Attainment	35 ppm	Attainment
	8-hour	9 ppm		9 ppm	
Nitrogen Dioxide	1-hour	0.18 ppm	Attainment	100 ppb	Attainment
	Annual	0.030 ppm		0.053 ppb	
PM_{10}	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
	Annual	20 µg/m^3		--	--
$PM_{2.5}$	24-hour	--	--	35 µg/m^3	Unclassified
	Annual	12.0 µg/m^3	Attainment	12.0 µg/m^3	Maintenance
Lead	30-day Average	1.5 µg/m^3	Attainment	--	--
	Calendar Quarter	--	--	1.5 µg/m^3	Attainment
	Rolling 3-monthAverage	--	--	0.15 µg/m^3	Unclassified
Hydrogen Sulfide	1-hour	0.03 ppm/ 42 µg/m^3	Unclassified	No National Standard	
Sulfate	24-hour	25 µg/m^3	Attainment	No National Standard	
Sulfur Dioxide	1-hour	0.25 ppm	Attainment	75 ppb	Attainment
	24-hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	Annual	--	--	0.030 ppm	Attainment
Vinyl Chloride	24-hour	0.01 ppm / 26 µg/m^3	Unclassified	No National Standard	

NOTES: µg/m^3 = Microgram(s) per cubic meter
ppm = Part(s) per million
ppb = Part(s) per billion
PM_{10} and $PM_{2.5}$ = particulate matter with size of 10 or 2.5 microns
NAAQS = National Ambient Air Quality Standards
CAAQS = California Ambient Air Quality Standards

Source: California Air Resources Board, 2020

Various sources on the installation emit criteria pollutants and hazardous air pollutants including generators, boilers, water heaters, fuel storage tanks, gasoline service stations, surface coating/paint booths, and miscellaneous chemical usage. The infrastructure at Beale AFB is sub-par and the mission requires diesel generators as its primary source of backup power. The air quality in Yuba County is characterized by the Environmental Protection Agency as maintenance for $PM_{2.5}$ (2006) and as unclassified/attainment for all other criteria pollutants (U.S. EPA 2020). Beale AFB is not designated as a major source and is not located within 10 kilometers of a Class I area; therefore, Beale AFB is not a Title V permit holder and is not subject to the Prevention of Significant Deterioration regulation.

3.2.3 Environmental Consequences

Proposed Action

Operation of the solar PV project would result in long-term moderate beneficial impacts to air quality and overall GHG emissions at Beale and within the region. By off-setting a commensurate amount of electricity using solar-produced electricity, Beale would consume less fossil fuel-derived electricity attributable to the installation's electrical demand and would no longer need to be reliant on diesel powered generators. The Doolittle Power Station Repair & Upgrade project would save approximately 860 kilograms (kg) of CO_2 per MW hour (MWh) of solar power production.

Air Conformity Applicability Model (ACAM) Summary

Total combined direct and indirect emissions associated with the Proposed Action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the Proposed Action according to the requirements of 40 CFR 93, Subpart B (Tables 3-7, 3-8, and 3-9).

Table 3-7: Conformity analysis summary for 2022.

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.291	100	No
NOx	1.756	100	No
CO	1.747		
SOx	0.005	100	No
PM 10	14.050		
PM 2.5	0.072	100	No
Pb	0.000		
NH3	0.001	100	No
CO2e	475.9		

Notes: CO = Carbon monoxide
CO_2e = Carbon dioxide equivalent
NH_3 = Ammonia
NOx = Nitrogen oxides

Pb = Lead
SOx = Sulfur oxides
VOC = Volatile organic compound
Source & Date: Record of Conformity Analysis (ROCA), 2022.

Table 3-8: Conformity analysis summary for 2023.

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.056	100	No
NOx	0.313	100	No
CO	0.385		
SOx	0.001	100	No
PM 10	0.475		
PM 2.5	0.012	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	100.9		

Source & Date: Record of Conformity Analysis (ROCA), 2022.

Table 3-9: Conformity analysis summary for 2024.

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	0.0		

Source & Date: Record of Conformity Analysis (ROCA), 2022.

None of estimated emissions associated with the Proposed Action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

No Action Alternative

Under the No-Action Alternative, the Doolittle Power Station would not be constructed and the Global Hawk mission would continue to rely on diesel powered generators as a source of backup energy – this would result in intermittent, minor, adverse impacts to air quality during events where backup power is needed.

3.3 AIRSPACE MANAGEMENT AND USE

This section of the EA describes airspace management and use in the Proposed Action area, including the regulatory and environmental settings.

3.3.1 Definition of the Resource

Airspace management is defined as the direction, control, and handling of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States and its territories. "Navigable airspace" is airspace above the minimum altitudes of flight prescribed by regulations under U.S. Code (USC) Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the take-off and landing of aircraft (49 USC Section 40102).

National airspace is defined as the space that lies above a nation and comes under its jurisdiction. Although it is generally viewed as being unlimited, airspace is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. The Federal Aviation Administration (FAA) defines National Airspace System (NAS) as "... a common network of airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; and rules, regulations and procedures, technical information and manpower and material (FAA 2015)." The NAS is designed and managed to protect aircraft operations around most airports and along air traffic routes connecting these airports, as well as within special areas where activities such as military flight training are conducted.

The FAA has established Special Use Airspace (SUA) within the NAS to contain or segregate activities that would be hazardous to nonparticipating aircraft. Military Operating Areas are defined airspace areas established by the FAA to separate/segregate certain military aviation activities from Instrument Flight Rules traffic and to identify where these activities are conducted for commercial Visual Flight Rules traffic. A restricted area is airspace within which flight by nonparticipating aircraft, while not wholly prohibited, is subject to restriction during scheduled periods when hazardous activities are being performed (14 Code of Federal Regulations [CFR] Part 1.1). Restricted areas designated as "joint use" by the FAA permit Air Traffic Control (ATC) to route nonparticipating aircraft through this airspace when it is not in use or when appropriate separation can be provided. SUA, which is identified for military and other governmental activities, is charted and published by the National Aeronautical Charting Office in accordance with FAA Order JO7400.2L and other applicable regulations and orders. Management of this resource considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation.

3.3.2 Existing Conditions

3.3.3 Environmental Consequences

Airspace Penetration:

The tallest structures proposed for this project are the transformers, which may be up to 25 feet in height. The FAA regulates structures taller than 200 feet according to FAA Regulations 14 CFR Part 77.13. Though adverse effects are not anticipated to occur, coordination of proposed transformer heights and notification would ensure adverse effects would not occur.

Solar Reflectivity:

Reflectivity refers to light that is reflected off any surface. The potential impacts of reflectivity are glint and glare. Glint is a momentary flash of bright light and glare is a continuous source of bright light, both of which can cause brief visual impairment (also known as afterimage or temporary flash blindness) (FAA, 2010) (FAA Order 7400.2L defines flash blindness as "Generally, a temporary visual interference effect that persists after the source of illumination has ceased"). The potential impact of glare can be measured using the magnitude of reflection (referred to as retinal irradiance) and the subtended angle of the reflection (derived from the size of the reflected area and its distance from the sensitive receptor).

The Air Force conducted numerous tests to determine if reflections from the solar PV panels on Nellis AFB would affect pilot performance. After several such tests, the Air Force concluded that glare and glint from solar panels did not affect the performance of pilots in their training missions. It was concluded that in the worst possible case, there was a slight potential for an "after image or flash glare" which was similar to the risk from reflections from water and less than that from snow or white concrete. An Environmental Assessment for the construction and operation of the solar farm at Nellis AFB (USAF 2011) concluded that "reflectivity from solar panels would be no greater than weathered white concrete and would not increase glare on aviators approaching or departing the airfield." The Finding of No Significant Impact (FONSI) indicated that no adverse effects relating to safety would occur. The use of airspace over Nellis AFB was not impacted by operation of the 14 MW solar facility (USAF 2011).

The experience of Air Force pilots conducting operations over a solar power generation project at Nellis AFB suggests that there would be little, if any, impact on the use of airspace over Beale AFB as a result of the Proposed Action.

3.4 LAND USE AND AGRICULTURE

3.4.1 Definition of the Resource

Land use generally refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational (Brady 2006).

3.4.2 Existing Conditions

Beale AFB contains improved, semi-improved, and unimproved land areas based on land classifications defined in AFMAN 32-7003. A variety of land uses can be found that are typical of military installations. Approximately 96 percent of the land use total for the installation includes open space, airfield, industrial, and housing (Beale AFB 2019). The land that the Proposed Action is located on is currently zoned as open space and much of it is used as grazing land for livestock.

3.4.3 Environmental Consequences

Proposed Action

The Proposed Action would not change the existing land use classification—it would remain as open space. However, approximately 3.5 acres of the proposed site is currently used as grazing land for livestock.

The impact of potentially changing outleased grazing land to a solar PV array field is considered to be negligible. The Proposed Action would slightly decrease funds to conservation use on base from this lease area. However, use of farmland for national defense is exempted from the requirement that Federal programs minimize the extent to which they contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses (7 U.S.C. § 4208(b) and 7 C.F.R. § 658.3(b)).

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed and there would be no impacts to land use or agriculture.

3.5 SOIL RESOURCES

3.5.1 Definition of the Resource

Soil, in general, refers to unconsolidated earthen materials overlying bedrock and other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

Topography consists of the physiographic, or surface, features of an area and is usually described with respect to elevation, slope, aspect, and landforms. Long-term geological, erosional, and depositional processes typically influence topographic relief.

3.5.2 Existing Conditions

Topography

The western and central portions of Beale AFB (flight line and Main Base) consist of relatively flat grasslands, characteristic of the topography of the Central Valley. The elevation of Beale AFB is approximately 80 to 90 feet above mean sea level (North American Vertical Datum of 1988) along the western and southern border. The eastern portion of the base, including the military family housing area and the proposed project area, contains low, rolling hills that gradually merge with the foothills of the Sierra Nevada Mountains. The topography becomes progressively steeper towards the east. The dissected uplands of the Laguna Formations have elevations of 100 to 300 feet above mean sea level. Further towards the Metavolcanic Rock Formation, elevations exceed 500 feet above mean sea level in some locations. The proposed project area is located at the base of the low rolling hills as the landscape transitions to the relatively flat grasslands of the Central Valley. Elevations at the proposed project area are approximately 145 to 165 feet above mean sea level (Beale AFB 2019).

Soil Resources

Data indicates that the near-surface (upper 10 to 20 feet) soils are typically silty sandy gravels or clayey sandy gravels with cobbles. The soils at Beale AFB commonly retain moisture for long periods of time and readily become unstable when disturbed by construction activities during and long after rainy/wet periods. Corrosivity testing was not performed for these projects, however recent testing for the Hydrant Fuel project (located northwest of proposed site) and Bulk Fuel Farm project (located to the south of the proposed site) indicate moderate to severe corrosion potential (USACE 2019). There are 14 soil map units of soil series or soil complexes on Beale AFB that can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The Main Base and flight line are on the valley soils. Soils at Beale AFB contain a high amount of clay and have an underlying hardpan; therefore, the proposed construction period at the Base is limited to the dry season (May through October). The limited operation period for earth-disturbing activities on Beale AFB is typically from November 1 through May 1 to avoid problems arising from saturated soils in work areas (Beale AFB 2019). Restrictions are soil depth (highly variable), slope (3 to 75 percent), and water erosion. The predominant soil series in the project area is Redding-Corning Complex, 3-8 % slopes (Figure 3-1). The soils have very severe limitations that reduces the choice of plants or that require very careful management. These soils are suitable for wildlife habitat and livestock grazing. Infiltration is limited on these soils and the erosion hazard is low. Soils are generally described as well-drained, gravelly loam with clay layer typically occurring at 19 to 33 inches and duripan at 33 to 43 inches with mixed alluvium occurring on fan terraces (USDA 2022).

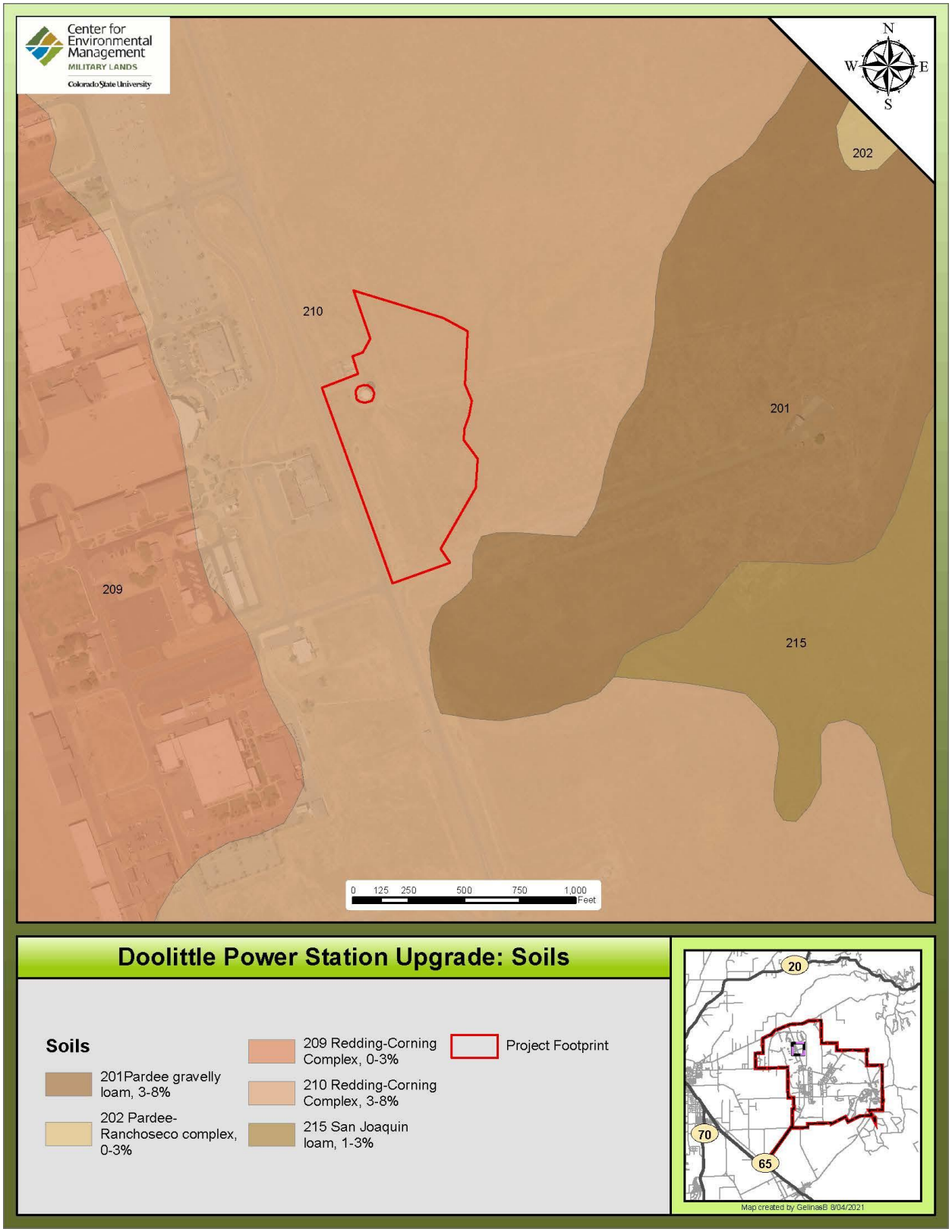

Figure 3-1: Soils Map for Doolittle Power Station

3.5.3 Environmental Consequences

Proposed Action

Construction of the proposed project would involve earthwork activities that could expose soils to erosion. The proposed project is located on relatively flat topography and would not involve grading steep slopes; however, earthmoving and construction activities could loosen soil, and the removal of vegetation could contribute to soil loss and erosion by wind and stormwater runoff. Due to the amount of ground disturbing work that would be performed under the Proposed Action, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented. The SWPPP would specify Best Management Practices (BMPs) to prevent disturbed soils (such as topsoil), from moving offsite. Site grading for the Proposed Action would be designed to maintain the predevelopment hydrology. The Contractor would incorporate the LID for the site storm drainage system design, per *UFC 3-210-10, Figure 2-1, Option 2*. Given the relatively flat nature and pervious surface of the project site, it is unlikely that soil erosion from water runoff would occur with implementation of the construction SWPPP and the required BMPs. Blanket mulch would be utilized as an effective way of revegetation in order to provide soils protection from erosion. As a result, the proposed project would have no adverse effects related to accelerated erosion.

During construction and maintenance activities, potential soil contamination due to spills of hazardous materials could occur (e.g., fuel spills from vehicles and equipment). With environmental protection measures, to include BMPs and SOPs, for preventing and responding to potential contamination, impacts would be anticipated to be negligible. In the unlikely event of a spill, containment measures and corrective actions would be implemented in accordance with the Beale AFB spill response plan. The soils in the Proposed Action area are not known to have any fuel contamination although other contaminants such as aqueous film forming foam, frequently used in firefighting, may be present. Activities associated with the project would not be expected to allow workers to come in contact with contaminated soil or groundwater. Protective measures would be implemented during excavation. If the workers encountered discolored soil or detected a chemical odor, work would be stopped until the source could be determined.

During operation and maintenance activities, accelerated soil erosion could occur as a result of natural processes (e.g., wind and rain) and from run-off related to module washing. To minimize potential effects, the system operator would monitor the array field and associated support infrastructure (e.g., transmission lines) to check for soil erosion. Additionally, the system operator would ensure that a vegetation cover is maintained under and around the solar array systems as much as possible to reduce any run-off related to module washing. Accelerated soil erosion, such as apparent sheet erosion or formation of rills would remedied as appropriate. If erosion concerns were resulting from operations such as module washing, these operations would pause until soil protection measures were installed. Consequently, negligible long-term adverse impacts would be anticipated as a result of operations and maintenance.

No action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed and the land would be left as is. No direct, indirect, or cumulative impacts would occur from the No Action Alternative.

3.6 WATER RESOURCES

3.6.1 Surface and Storm Water

3.6.1.1 Definition of the Resource

Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. There are three types of surface water: perennial, ephemeral, and man-made. Perennial, or permanent, surface water persists throughout the year and is replenished with groundwater when there is little precipitation. Ephemeral, or semi-permanent, surface water exists for only part of the year. Ephemeral surface water includes small creeks, lagoons, and water holes. Man-made surface water is found in artificial structures, such as dams and constructed wetlands.

3.6.1.2 Existing Conditions

Beale AFB is subdivided into five storm water drainage basins (SWB-1 through SWB-5) based on geologic conditions and topographic characteristics. Two basins, SWB-2 and SWB-5, are completely contained within the Base boundaries, the other three basins receive up-gradient stream and alluvial run-on from Reeds Creek (SWB-1), numerous unnamed small tributaries (SWB-3), and Dry Creek (SWB-4). The Proposed Action is within SWB-2. SWB-2 is located in the northwestern portion of Beale AFB and consists primarily of the flight line and supporting industrial activities (Figure 3-2). This 3,289.60-acre basin contains approximately 12.5% impervious surfaces consisting of paved runways, taxiways, roads, and building structures; undeveloped grassy areas are located adjacent to the flight line activities (Beale AFB 2019).

A man-made drainage ditch with an underground pipe originating from the water tank is present. The tank pipe ends with an 8 inch flapper beyond a concrete retainer wall. It is used for emergency use only if the water tower experiences damage. The outflow from the pipe is routed towards the stream channel and wetlands to the east of the Proposed Action. The Proposed Action is 50 feet or more away from the drainage/vernal pools/vernal swales bordering the eastern portion of the project footprint. Figure 3-3 shows the existing contours in and around the Proposed Action.

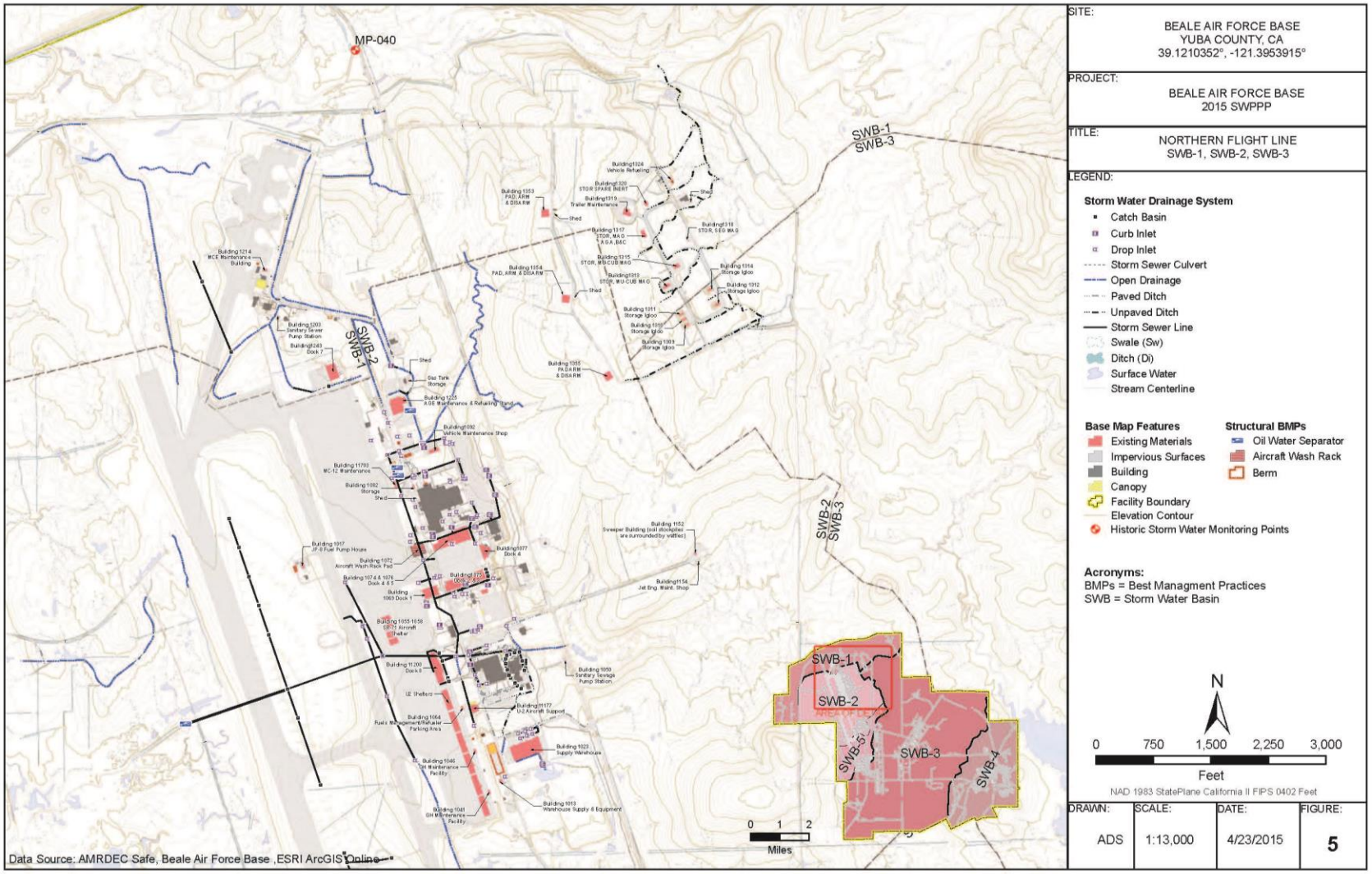

Figure 3-2: Storm Water Drainage Basins on Beale AFB, California.

Figure 3-3: Contour Lines In and Around the Proposed Action

3.6.1.3 Environmental Consequences

Proposed Action

The construction of the project could impact water quality through erosion and sedimentation resulting directly from earthwork or an alteration in drainage pattern caused by earthwork. Site grading for the Proposed Action would be designed to maintain the predevelopment hydrology. The Contractor would incorporate the LID for the site storm drainage system design, per *UFC 3-210-10, Figure 2-1, Option 2*. In addition to construction practices that minimize the potential for substantial soil erosion, implementation of a SWPPP would be required during construction (Beale AFB 2021b). In addition to Project Design Criteria, the SWPPP would identify and implement site-specific BMPs to reduce or prevent pollutants associated with industrial activities in storm water discharges in an effort to comply with federal, state, and local regulations. This would include scheduling, good housekeeping, and erosion and sediment control BMPs, such as maintaining groundcover with blanket mulch, project boundary fencing, and reducing slope length that would prevent the occurrence of accelerated erosion or siltation onsite and offsite. With the implementation of Project Design Criteria and following the SWPPP, the impact of project construction on water quality would be negligible and indirect.

Project operation would involve the use and storage of hazardous chemicals onsite that have the potential to contaminate surface runoff if poorly managed. These materials would include oils, lubricants, paints, solvents, degreasers and other cleaners, and transformer Type II mineral oil. The contractor would be required to develop a Hazardous Materials Management Plan which would delineate hazardous material and hazardous waste storage areas and describe procedures for handling and disposing of hazardous materials used during operation. Best management practices within the Industrial SWPPP would outline procedures to ensure protection of water quality.

During operation, the presence of the project structures, including impervious surfaces that would result from construction of maintenance buildings, various concrete pads for inverters and/or substation/switchyard components, and solar panel surfaces (which result in a dripline), would have minor and localized effects on the site's existing drainage pattern, which could lead to erosion, siltation or flooding onsite or offsite. Up to 9 acres of the project site would be developed. Development would mainly consist of individual panels mounted on poles and the replacement of the substation in place. Thus, with the exception of the control room and concrete pads, the majority of the project site would continue to allow stormwater percolation. Further, the project would be designed to maintain the predevelopment hydrology. Additionally, the contractor would prepare a grading plan that would detail the implementation of drainage devices and erosion control features designed to minimize excess runoff and reduce erosion and sedimentation. With implementation of mitigation measures, operation of the project would comply with all General Plan and Specific Plan requirements pertaining to surface water quality and drainage patterns. No adverse effects related to erosion or siltation are expected.

No Action Alternative

Under the No Action Alternative, the proposed project would not be undertaken, and conditions would remain as they are currently. No direct, indirect, or cumulative impacts to surface water are expected with the implementation of the No Action Alternative.

3.6.2 Groundwater

3.6.2.1 Definition of the Resource

Groundwater resources consist of water located beneath the ground surface in soil pore space, bedrock fractures, and subterranean drainage (i.e., karst dissolution features).

3.6.2.2 Existing Conditions

The groundwater table at Beale AFB is deepest in the western portion of the Base adjacent to the flight line and shallowest in the eastern portion of the Base. Groundwater for drinking purposes at Beale AFB occurs 300 to 500 feet below ground surface and is presumed to originate in unconfined aquifer material with local clay/silt lenses overlying the Central Valley 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 2014b). 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 portions of the installation.

Groundwater in some places at Beale AFB has been contaminated with chemicals such as petrochemicals and solvents due to historical Army and Air Force activities. More than 1,000 groundwater monitoring wells, extraction wells, and piezometers are now located throughout the Base (Beale AFB 2019). Groundwater contaminant levels are monitored at 7 sites consisting of 18 plumes using regulatory Monitoring and Reporting Program requirements that are included in the Annual Base-wide Groundwater Monitoring Program Report (CH2MHill 2018).

3.6.2.3 Environmental Consequences

Proposed Action

No dewatering or other disturbance of groundwater is proposed and therefore would not impact groundwater storage. No short-term or long-term environmental consequences related to surface or groundwater resources are anticipated.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed. There would be no impacts to groundwater from the No Action Alternative.

3.6.3 Wetlands/Other Waters

3.6.3.1 Definition of the Resource

Wetlands and other waters of the United States are defined within the Clean Water Act, as amended, and jurisdiction is addressed by EPA and the USACE. These agencies assert jurisdiction over the following:

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

Section 404 of the Clean Water Act regulates the discharge of dredge or fills into waters of the U.S., including wetlands. Encroachment into waters of the U.S. and wetlands typically requires a permit from the state and the federal government.

3.6.3.2 Existing Conditions

There are approximately 3,089 acres of aquatic resources, including vernal pools, and/or other water bodies within Beale AFB that are potential waters of the United States regulated under Section 404 of the CWA. This includes 2,328 acres of wetlands and 761 acres of non-wetland waters (deep water, ditches, seeps, and streams) (Beale AFB 2019; Beale AFB 2020b). Beale AFB also includes approximately 1,379 acres of vernal pools, which are extensive in the western, central, and southern portions of the Base. These seasonal wetlands provide unique habitat for plants that germinate as aquatic/semiaquatic plants in the winter and survive a drought environment in the summer. Wetlands including vernal pools, riparian forests, and freshwater marshes provide habitat for a variety of wildlife on Beale AFB.

Figure 3-4 depicts the aquatic resources located in proximity to the Proposed Action. The delineation of potential aquatic resources within the Project Area was performed in accordance with the methods described in the USACE Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the USACE Wetland Delineation Manual: Arid West Supplement (USACE 2008a). The delineation of non-wetland waters followed the methods described in A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008b).

From 2006-2009, Light Detection and Ranging (LiDAR) was used to develop a preliminary jurisdictional delineation of wetland and water features at Beale AFB (USACE 2012) in order to develop a Base-wide inventory of aquatic features and Waters of the United States. In 2019 and 2020, the LiDAR data for the Proposed Action Area and a 250-foot buffer were ground-truthed and verified (e.g., examined for hydric soils, vegetation, and evidence of ponding as well as contours, slope, and depth) by Beale AFB biologists. This was done to confirm the location and classification of wetland features within the Proposed Action Area and buffer. Field observations verified the presence of all wetland features originally identified by LiDAR (Figure 3-4). One feature was originally delineated as a swale, but upon inspection was found to be a man-made

ditch (Di1524) following the fall line of the slope which is the drainage for the underground pipe extending from the water tower for emergency use in the event that the water tower is damaged.

The Proposed Action was designed with the nearby wetlands and other waters in mind by designating a 50 foot buffer around the wetland where no actions would be allowed to occur within.

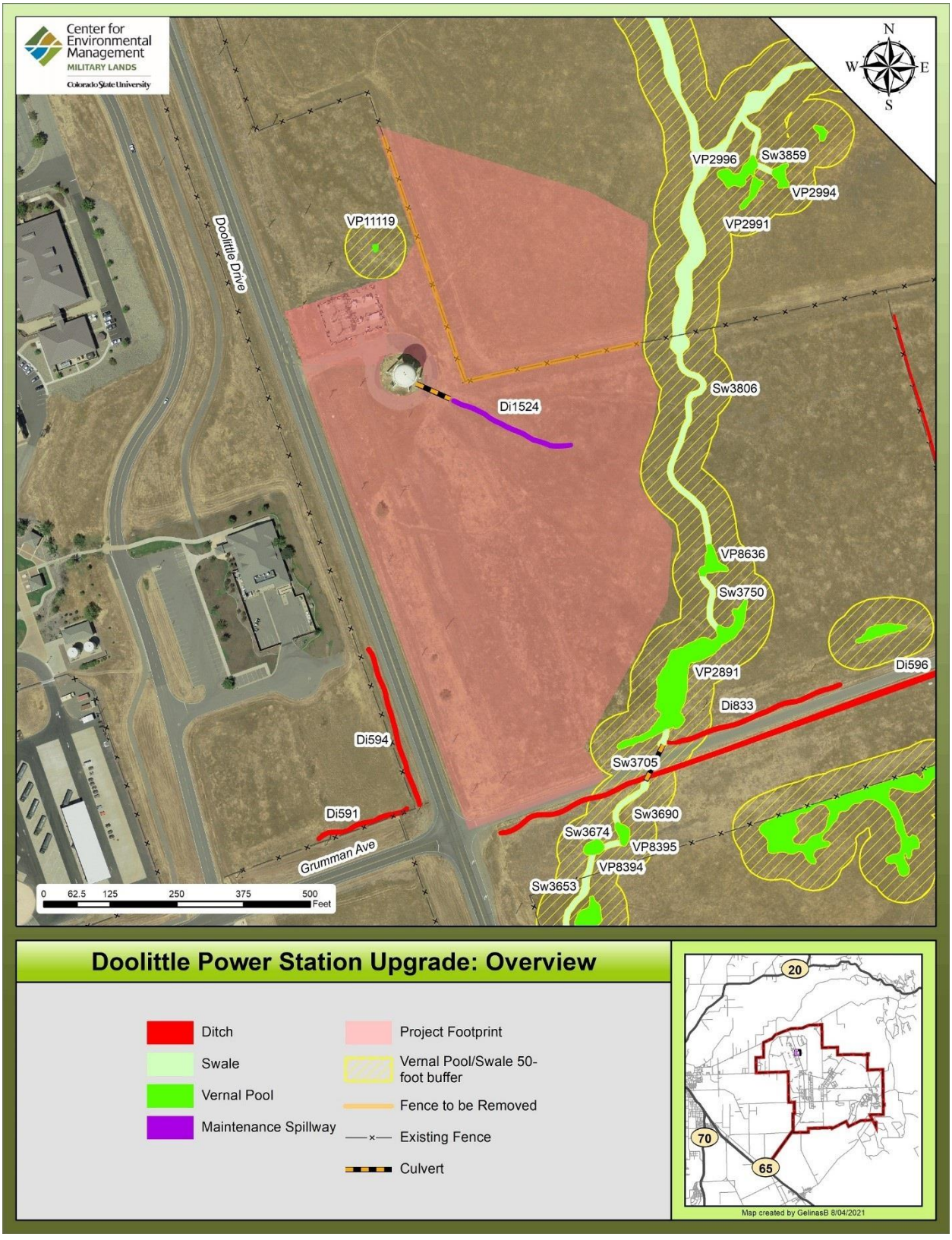

Figure 3-4: Wetland and other water features within 250 feet of the Proposed Action, Beale AFB, California.

3.6.3.3 Environmental Consequences

Proposed Action

Due to the 50 foot buffer, the Proposed Action would not have any direct impacts to wetlands or other waters as proposed work would not occur within any water features.

As stated before in section 3.6.1, effects to surface water would only be indirect but with implementation of Project Design Criteria and following the SWPPP, the impact of project construction on wetlands and other waters would be negligible. No vernal pools or other wetlands would be filled or otherwise adversely affected by the Proposed Action. All wetlands within 50 feet of the Proposed Action Area would be protected through implementation of the AMMs outlined in this document.

No Action Alternative

The No Action Alternative would not construct the Doolittle Power Station and therefore would not have any impacts to wetlands or other waters.

3.7 BIOLOGICAL RESOURCES

Beale AFB is in the ecological and geographic transition zone between the flat agricultural lands of the Sacramento Valley and the foothills of the western slope of the Sierra Nevada Mountains. The installation is within the Humid Temperate Mediterranean California Dry Steppe ecoregion (Beale AFB 2019). This ecoregion is characterized by hot, dry summers and mild winters. Beale AFB is within the alluvial plains of the Sacramento and San Joaquin valleys. Vegetation communities within the Sacramento Valley include forested oak woodlands, grasslands, and riparian areas found along the riverine systems (Beale AFB 2019). Vernal pools are also present and provide important habitat for several listed species. Much of the land surrounding Beale AFB has been converted to agricultural use, including cropland, pasture, and rural communities. This land use provides some wildlife habitat in irrigation ditches and canals, fallow and flooded fields, and hedgerows.

Beale AFB is adjacent to the Spenceville Wildlife Management Area, and borders three conservation easement areas. These wildlife areas and undeveloped land within Beale AFB provide habitat for wildlife and plant communities, as well as rare, threatened, and endangered species.

3.7.1 Vegetation

3.7.1.1 Definition of the Resource

Vegetation resources refer to the plant communities at any scale including grasses, herbs, forbs, shrubs, vines, and trees.

3.7.1.2 Existing Conditions

The vegetation in and around the Action Area is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in

varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*). Interspersed with the grassland are a few ephemeral wetlands, which may provide habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. The dominant wetland plant taxa at Beale AFB are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castillega campestris*), and ornate downingia (*Downingia ornatissima*).

3.7.1.3 Environmental Consequences

Proposed Action

Under the Proposed Action, approximately 8.3 acres of vegetation would be removed during construction of the photovoltaic solar array system. However, standard Avoidance and Minimization Measures (AMMs) would be employed to ensure that all upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix (Appendix D). Exposed soil will be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area. Species selected for vegetation would be low in height so as to reduce the need for mowing.

This would result in temporary, minor direct adverse impacts to vegetation. However, effective execution of AMMs would regenerate vegetation in disturbed areas with native flora which would result in a more beneficial vegetative landscape than what already exists. This would result in long-term, minor beneficial direct impacts to vegetation.

No Action Alternative

The No Action Alternative would not result in any changes to conditions at the site and would not result in impacts to vegetation. The existing vegetative communities would not be altered.

3.7.2 Wildlife

3.7.2.1 Definition of the Resource

Wildlife resources refer to the animal communities that have been specifically observed or are considered likely to utilize the habitats that occur within the site. The wildlife community at Beale AFB and the surrounding region includes several species of fish, amphibians, reptiles, birds, and mammals.

3.7.2.2 Existing Conditions

Beale AFB and the areas surrounding the Proposed Action provide habitat that supports a variety of wildlife species. Grassland habitats that dominate the vicinity of the Proposed Action provide

nesting, breeding, and foraging habitat for birds, as well as habitat for mammals, amphibians, reptiles, and invertebrate species. In addition to grassland habitats, the surrounding area also includes seasonal wetland habitats such as swales, ditches, and vernal pools. This section focuses on the species most likely present in the grasslands, and seasonal wetland habitats found within, and adjacent to, the Proposed Action.

Grassland Habitat: Grasslands on Beale AFB provide important breeding and foraging habitat for many bird species. Birds that frequent grasslands on Beale AFB include the American kestrel (*Falco sparverius*), western bluebird (*Sialia mexicana*), rough-legged hawk (*Buteo lagopus*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), dove (*Zenaida macroura*), and Brewer's blackbird (*Euphagus cyanocephalus*). Birds of special interest that have been observed foraging in the annual grasslands at Beale AFB include Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*) and Tricolored blackbird (*Agelaius tricolor*). Owls including great-horned (*Bubo virginianus*), barn (*Tyto alba*) and short-eared (*Asio flmmeus*) have been observed foraging in the grasslands at night. Barn owls are abundant, often nesting in human-made structures adjacent to open areas. Grasslands are also an important habitat for common rodents and large and small predators, including the gray fox (*Urocyon cinereoargenteus*), black-tailed deer (*Odocoileus hemionus*), black-tailed hare (*Lepus californicus*), cottontail rabbit (*Sylvilagus audobonii*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), 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*), western fence lizard (*Sceloporus occidentalis*), and western skink (*Plestiodon skiltonianus*). The grasslands of Beale AFB also provide habitat for many important pollinator species, including the monarch butterfly (*Danaus plexippus*).

Seasonal Wetland Habitat: A variety of seasonal wetland habitats can also be found within and adjacent to the footprint of the Proposed Action, including vernal pools, swales, and ditches. These seasonal wetlands contain similar wildlife species to the annual grasslands, in addition to a suite of species adapted to the seasonally saturated conditions. During the wet season, from late fall to early spring, this habitat supports a higher diversity of invertebrates, birds, mammals, reptiles, and amphibians than adjacent grasslands. When inundated, these seasonal wetlands attract waterfowl, shorebirds, and waterbirds. Amphibians such as the pacific treefrog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*) also use vernal pools and other seasonal wetlands while they are inundated, and predators such as garter snakes (*Thamnophis spp*.), raccoons (*Procyon lotor*), and large waterbirds feed on these amphibians. Vernal pools provide habitat for a highly diverse assortment of copepods, amphipods, crustaceans and insects. These invertebrates are important prey for many of the species listed above.

3.7.2.3 Environmental Consequences

Proposed Action

Under the Proposed Action, temporary and long-term impacts to wildlife habitat would occur during, and following, site preparation and construction activities. However, direct impacts to wildlife would not be expected because wildlife would likely move away from the Proposed Action during construction and would likely return to the site following project completion.

Switchyard, Battery Energy Storage System, and Pavement

Demolition of the existing substation and construction of the new switchyard and BESS would expand the footprint of the existing infrastructure. Construction of the new switchyard and BESS would result in the permanent removal of 0.4 acres of vegetation. Following demolition of the existing substation, the site would be graded and prepared for construction of the new switchyard foundation. Access to the area would be from the existing paved surface surrounding the water tower and a 50-foot buffer around the vernal pool feature (north of the proposed switchyard) would be preserved during construction to ensure that no vehicles or ground disturbing work would occur within or around the ephemeral wetland.

Overall, this activity would result in a permanent loss of wildlife habitat which would equate to long-term indirect adverse impacts — however, these impacts are expected to be minor due to the poor quality of the removed habitat and the insignificant size of the lost habitat.

Solar Panel Array, Site Access, and Staging Area

Preparation for construction of the solar panel array would include to establish the aggregate site access, grading the around the designated solar panel rows, excavation for panel foundations, and trenching throughout the site for utility lines and to reroute the water tank drainage pipe towards the ditch along Doolittle Dr. This disturbance would result in temporary loss of wildlife habitat during construction. With the exception of the solar panel foundations and the aggregate site access area, the entire site would be reseeded with Beale AFB-approved native seed mix to restore native vegetation throughout the site. Other than the access points, no gravel or herbicide would be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field. Site maintenance would include mowing/weed eating of the PV field at least once a year to reduce fire hazards and to ensure vegetation does not cover solar panels. The combination of site restoration using native seed and regular mowing would encourage forbs and reduce buildup of non-native grass thatch, thereby benefitting invertebrate pollinators.

An aggregate apron would be developed near the intersection of Doolittle Road and Grumman Avenue to facilitate parking and vehicle access to the PV solar array. This area would result in the permanent loss of 0.16 acres of vegetated wildlife habitat.

Fencing

Existing fencing at the site would be removed and a new, 6 foot tall, chain link fence would be established for security, with gates along Grumman Avenue and near the proposed switchyard. It would be anticipated that the minimal number of small sized terrestrial wildlife that exists within this grassland area within an active airfield would move away from the Proposed Action during demolition and construction activities. While the new fence may limit movement of larger

animals into and out of the solar array facility, smaller animals would still be able to move through the area in the vicinity of the gates or through the chain link fencing.

No Action Alternative

Under the No Action Alternative, construction of the Doolittle Power Station would not occur and wildlife would be untouched. No direct, indirect, or cumulative impacts to wildlife are associated with the No Action Alternative.

3.7.3 Threatened and Endangered Species and Species of Concern

3.7.3.1 Definition of the Resource

The ESA (16 U.S. C. 1531 et seq.) establishes a federal program to protect and recover imperiled species and the ecosystems upon which they depend. The ESA requires federal agencies, in consultation with USFWS and the NMFS, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. An endangered species is defined by the ESA as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined by the ESA as any species likely to become an endangered species in the foreseeable future. The ESA also prohibits any action that causes a take of any listed species. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to engage in any such conduct. Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal land.

Critical habitat is designated if USFWS or NMFS determines that the habitat is essential to the conservation of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must ensure that their activities do not adversely modify critical habitat to the point that it would no longer aid in the species' recovery.

3.7.3.2 Existing Conditions

A preliminary list of species for consideration was compiled from official species lists maintained by USFWS, available in its Information for Planning and Consultation (IPaC) tool, and data from special status species surveys of Beale AFB. Federally-listed species with the potential to occur in or near the Action Area were evaluated to determine if the Proposed Action could affect the species or their habitat (Table 3-10). Potential ESA habitat can visually be seen in Figure 3-4.

Table 3-10: ESA-Listed Species with Potential to Occur at Beale AFB, California

Common Name	Scientific Name	Federal Status	State Status	Known to Occur at Beale AFB	Potential to Occur within Action Area
Crustaceans					
Vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	None	Yes	Yes
Conservancy fairy shrimp	*Branchinecta conservatio*	Endangered	None	No	No

Vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	None	Yes	Yes
Insects					
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened	None	Yes	No
Monarch Butterfly	*Danaus plexippus*	Candidate	None	Yes	Yes
Amphibians					
California red-legged frog	*Rana draytonii*	Threatened	None	No	No
Birds					
Western yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Endangered	Unknown	No
Source: California Department of Fish and Wildlife (CDFW) 2019, USFWS IPaC Tool Dec 2, 2020 (USFWS 2020a).					

Of the species listed in Table 3-10, only vernal pool fairy shrimp, vernal pool tadpole shrimp, and western monarch have the potential to be present near the Proposed Action and therefore, are considered in this section.

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest known vernal pool fairy shrimp occurrence is approximately 980 feet from the Action Area. However, potential habitat exits within 250 feet of the Proposed Action (Beale AFB 2019).

Vernal pool tadpole shrimp (*Lepidurus packardi*): The nearest vernal pool tadpole shrimp occurrence is approximately 1,280 feet from the Action Area. However, potential habitat exits within 250 feet of the Proposed Action (Beale AFB 2019).

Monarch butterfly (*Danaus plexippus*): There are no records of monarchs within 250 feet of the project area. Additionally, there is no suitable breeding habitat (milkweed plant patches) or roosting sites (trees) for monarchs within 250 feet of the project area. The nearest known patch of milkweed plants is more than one mile from the Proposed Action Area (CEMML 2020a). There are however, potential nectaring sources on the site in the form off annual wildflowers and native perennial bulbs (e.g., *Dichlostema* & *Brodiaea* spp.).

The remaining four species were excluded from further consideration for the following reasons:

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphis*): No elderberry exists within the Action Area. The nearest blue elderberry shrub (*Sambucus nigra* subsp. *caerulea*) occurrence is located more than one mile from the Action Area (CEMML 2020b). Therefore, this species was eliminated from further consideration.

Conservancy fairy shrimp (*Branchinecta conservatio*): This species is not likely to occur on Beale AFB, and there are no known occurrences of the species within 10 miles of the Base (Beale AFB 2020). Therefore, this species was eliminated from further consideration.

California red-legged frog (*Rana draytonii*): An amphibian assessment of Beale AFB, did not find any California red-legged frogs (CRLF) on Base and they are believed to be historically present but extirpated (EDAW 2006, URS Corporation 2008b). Although CRLF habitat may have been present on Beale AFB in the past, poor habitat conditions and the presence of predators including the American bullfrog (*Lithobates catesbeianus)* do not allow populations to persist. The nearest recorded observation of CRLF was 32.5 miles from Beale AFB (CDFW 2019). Therefore, this species was eliminated from further consideration.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*): The western distinct population segment of the yellow-billed cuckoo was evaluated due to its relatively recent ESA listing as threatened. A habitat assessment for yellow-billed cuckoo was conducted on Beale AFB in 2018 (Halterman 2019) and additional surveys were performed in the summer of 2020 (CEMML 2020c). Additionally, the closest suitable habitat is greater than two miles from the Proposed Action Area. Therefore, this species was eliminated from further consideration.

3.7.3.3 Environmental Consequences

Proposed Action

An informal biological assessment (BA) was submitted to the USFWS on May 19th of 2022 which discussed the potential effects that the Proposed Action may have on federally-listed species (Beale AFB, 2022). The Proposed Action would have the potential to indirectly affect listed vernal pool species within the vicinity of the Proposed Action Area via runoff and soil erosion. There would also be the potential for indirect impacts to western monarchs from the temporary loss of nectar sources from the construction of the new solar array. However, the erosion control seed mix prescribed for this project, includes native flowers that can serve as nectar sources, which has the potential to improve the site for pollinators and would result in long-term indirectly beneficial impacts to the pollinators that are under Federal Review for the ESA list.

The Proposed Action Area has been planned and situated so that it is at least 50 feet from any potential vernal pool shrimp habitat. The direct effects were considered to be equivalent to the disturbance footprint of the Proposed Action Area. The project would occur adjacent to an existing swale/vernal pool complex that drains to the south along the eastern boundary of the project area, however, no potential listed species habitat lies within the Action Area itself. Therefore, there would be no direct effects to special status species or their habitat.

Due to the proposed location and nature of the project (upland annual grassland with minimal changes to hydrology), and with the implementation of the AMMs provided in Appendix D, it is anticipated that any indirect effects to potential vernal pool shrimp habitat would be temporary and discountable. All wetlands within 50 feet of the Proposed Action Area would be protected through implementation of the AMMs outlined in this EA to eliminate potential adverse effects to listed species. Justification for no impacts to wetland features within 50 feet and 250 feet of the Proposed Action Area is in Table 3-11 and Table 3-12, respectively. No vernal pools or other wetlands would be filled or otherwise directly adversely affected by the Proposed Action.

Future indirect impacts could come from routine maintenance to clean and repair the solar arrays, as well as mowing/weed eating. Proper timing of this maintenance – during the summer

months, when vernal pools are dry and most grassland plants are dormant – should minimize any damaging effects to nectar sources. Ideally, the site would primarily be maintained using weed-whacking, with limited mowing. As long as it does not increase the fire risk, this would allow workers to trim vegetation to 7-8 inches high, which would allow some low-growing late-season blooms to remain.

There is the potential for long-term indirect effects to vernal pool species from increased runoff and erosion from the site. However, with the implementation of AMMs specifying native plants be used as ground cover, the long-term erosion and runoff risk would be minimal. If emergency maintenance or repair is required during the wet season, access routes and AMMs will be determined by the NRM or qualified biologist.

The USFWS responded to the BA submitted by Beale AFB with an informal consultation on July 12th, 2022 (USFWS, 2022). The informal consultation concurred with Beale's determination that the Proposed Action may affect, but is not likely to adversely affect the fairy shrimp and tadpole shrimp because: (1) avoidance of sensitive areas; and (2) implementation of the proposed conservation measures, such as environmental awareness training, pre-construction surveys, biological monitoring, and erosion controls.

Table 3-11: Justification for ESA Determination of Impacts to Potential Vernal Pool Shrimp Habitat within 50 Feet of the Proposed Action Area, Beale AFB, California

ID	Elevation Relative to Action Area	Hydrologically Connected?	Acres	Distance (ft)	Justification for no Effect
Di1524	Lower	No	0.055	0	**Not suitable habitat**. Man-made ditch within Action Area through which outflow pipe would be rerouted. Some facultative wetland plants present, but no obligate species, mixed with upland vegetation. Slope of ditch such that potential for ponding is limited.
Di596	Lower	Yes	0.419	11.1	**Not suitable habitat**. Located across Grumman Avenue from the Project Area. Shallow drainage ditch that does not support vernal pool hydrology or flora. Silt fencing or other erosion control will be installed along the edge of this feature. Dust will be controlled on-site which will keep it from settling in wetlands. If soil or other materials are being tracked onto Grumman Avenue temporary entrance plates will be installed.
Sw3690	Lower	Yes	0.025	47.7	This is **suitable habitat**, but it is almost 50 feet from the Action Area across Grumman Avenue. Dust will be controlled on-site which will keep it from settling in wetlands. If soil or other materials are being tracked onto Grumman Avenue temporary entrance plates will be installed.

[Beale, 2022]

Table 3-12: Justification for ESA Determination of Impacts to Potential Vernal Pool Shrimp Habitat within 250 Feet of the Proposed Action Area, Beale AFB, California

Wetland Type	Number of Features	Elevation Relative to Action Area			Hydrologically Connected?		Acres	Distance (ft)
		Lower	Equal	Higher	Yes	No		
Ditch	5	5	0	0	2	3	0.65	0 – 129
Swale	7	7	0	0	7	0	1.052	48 – 228
Vernal Pool	9	9	0	0	8	1	0.474	52 – 250
Total	21	21	0	0	17	4	2.176	0 – 250
Justification for Not Likely to Adversely Affect								
A USFWS-approved biologist will monitor all construction activities in and adjacent to known or potential federally-listed vernal pool shrimp habitat. Work will be conducted during the dry season, limiting the potential for sediment to be washed into or transported to hydrologically connected potential vernal pool shrimp habitat. All wetland features within 50 feet of the Action Area will be flagged or fenced, and protected by physical erosion control measures. This will also protect any hydrologically connected features greater than 50 feet from the Action Area. Implementation of CMs will prevent adverse effects to potential vernal pool shrimp habitat. A USFWS-approved biologist will designate and flag access routes to areas adjacent to potential vernal pool shrimp habitat to the greatest extent possible, if access routes must cross potential vernal pool shrimp habitat, matting will be used for protection.								

[Beale, 2022]

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed. No impacts to T&E species would result from implementation of the No Action Alternative.

3.8 HAZARDOUS MATERIALS, HAZARDOUS WASTES, AND NON-HAZARDOUS WASTE

3.8.1 Definition of the Resource

A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S. C. 9601(14)), is defined as, "any substance designated pursuant to Section 1321(b)(2)(A) of Title 33; any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title; any hazardous substance having the characteristics identified under or listed pursuant to Section 3001 of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42 U.S. Code 6921); any toxic pollutant listed under Section 1317(a) of Title 33; any hazardous air pollutant listed under Section 112 of the CAA; and any imminently hazardous chemical substance or mixture with respect to which the Administrator of the EPA has taken action pursuant to Section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance; and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas)."

Hazardous materials are defined by 49 CFR Part 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR Part 172.101), and materials that meet the defining criteria for hazard classes and divisions." Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105−180. RCRA defines a hazardous waste as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

Non-hazardous waste means any garbage or refuse, construction and demolition waste, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Non-hazardous waste may be excluded from hazardous waste regulations. It is important to note that the definition of solid waste is not limited to wastes that are physically solid. Many solid wastes are liquid, semi-solid, or contained gaseous material.

3.8.2 Existing Conditions

Hazardous Materials

Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention,* establishes procedures and standards that govern management of hazardous materials throughout the USAF. This direction applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and those who manage, monitor, or track any of those activities. Under this regulation, the USAF has established roles, responsibilities, and requirements for the hazardous material management program. The purpose of the 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 Base's Hazardous Materials Management Plan applies to all hazardous materials brought onto Beale AFB.

Hazardous Waste

The Beale AFB Hazardous Waste Management Plan is required under Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention,* and complies with 40 CFR Parts 260 to 272. It prescribes the roles and responsibilities of all members of Beale AFB and organization 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 Hazardous Waste Management Plan. Beale AFB is a permitted Large Quantity Generator of hazardous waste. The most common hazardous wastes generated at Beale AFB include waste oil, photographic waste and contaminated wastewater.

Non-Hazardous Waste

The Beale AFB Integrated Solid Waste Management Plan prescribes the roles and responsibilities of all members of Beale AFB and organizations assigned to Beale AFB with respect to the management of non-hazardous wastes. The plan establishes procedures to comply with applicable federal, state, and local standards for solid waste management. The plan outlines procedures for identification, storage, transport and recycling/disposal. In addition, the plan identifies recycling goals established by the Department of Defense. Common non-hazardous wastes generated at Beale AFB include Construction and Demolition waste, trash, and recyclable wastes.

3.8.3 Environmental Consequences

Proposed Action

Under the Proposed Action, the project would be installing two new 15MVA ONAF 60kV/12.47kV transformers to replace the two existing transformers, a new 6.25 MVA ONAF 12.47kV/480V transformer, SF_6 switches, and a battery bank; potentially triggering State Hazardous Materials Business Planning rules. For hazardous waste purposes, waste solar panels (as of Jan 2021) are now identified as Universal Waste. If any panels are taken out of service or broken, they are to be dealt with as a Universal Waste.

The Beale AFB Hazardous Waste Management Plan would be implemented if wastes are deemed to be considered hazardous. The plan establishes procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management. The Hazardous Material Management Plan would also be implemented if hazardous materials are brought onto Beale AFB during the construction period (Beale AFB 2021a). The Integrated Solid Waste Management Plan would establish procedures for the recycling and disposal of non-hazardous wastes (Beale AFB 2020c).

The Proposed Action would require limited quantities of hazardous materials to be used and stored. These materials would include oils, lubricants, paints, solvents, degreasers and other cleaners, and transformer mineral oil. Transformer mineral oil would be stored at the onsite substation; all other hazardous materials would be stored in warehouses.

The Proposed Action may use solar panels that contain crystalline silicon or CdTe. Because crystalline silicon is in a solid and non-leachable state, crystalline silicon PV panels, including broken panels, would not be a source of pollution to surface water, stormwater, or groundwater. Also, it has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. If solar panels containing CdTe are used at the project site, CdTe releases would be unlikely to occur as a result of accidental damage to the crystalline silicon PV panels. Similarly, fire damage would not result in the release of CdTe.

Any hazardous materials used onsite would be stored in appropriate storage locations and containers. Flammable materials, such as paints and solvents, would be stored in nonflammable material storage cabinets with built-in containment sumps.

Even though hazardous wastes may be generated, hazardous materials would be used, and non-hazardous wastes would be created, impacts would be short-term and negligible due to the implementation of the Beale AFB plans.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed and no hazardous materials or hazardous waste would be generated. No impacts to hazardous materials or hazardous waste are anticipated from implementation of the No Action Alternative.

3.9 UTILITIES AND INFRASTRUCTURE

3.9.1 Definition of Resource

Utilities furnish an everyday necessity to the public at large and include provisions of electricity, natural gas, water, telecommunication service, wastewater management services, solid waste management service (non-hazardous), and other essentials. Utility plan operators and maintenance personnel are required to meet applicable federal, state, local or host nation certification requirements for the state or host nation in which they are located. Depending on the service provided, the facilities will also have specific statutory and regulatory requirements for design and operation.

3.9.2 Existing Conditions

PG&E is currently 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 Drive Substation, have two transformers each which are individually capable of supporting the full load of the substation.

The Global Hawk mission is located on the flight line with other buildings identified as critical by the installation. The primary power distribution sources for the flight line are circuits 5, 7, 8, 9. These circuits have a history of outages and need additional backup support. From 2010-2016 there were 87 outages on these circuits averaging 3 hours each. The outages totaled over 260 hours. The current backup system for Global Hawk consists of 3 – 500kW backup generators with around 7 days of fuel storage. Actual backup capabilities fluctuate based on electrical load.

The existing Doolittle Substation (F1149) converts the 60kV transmission to 12.47kV for distribution via five feeders for all U-2 hangars, five mission control elements and one launch and recovery element for the RQ-4, the KC-135 aircraft fuel dispensing network, all navigational aid facilities, the Munitions Area, and the water well field. The substation also provides power to the flight line fire department, air traffic control tower, all aircraft maintenance facilities, and to the airfield lighting. The flight line substation is a key component in the electrical infrastructure for ensuring mission resiliency in the event of a power outage due to a natural (or

unnatural) disaster. The Doolittle Substation was constructed approximately 70 years ago and has exceeded its service life. Over a five year time span, 90.5 man-hours has been spent maintaining the substation. Last year, a scheduled outage required generator support for an additional 85 hours. The layout of the substation is not designed to allow for maintenance while it is shut off. The overhead bus work is lower than required by the National Electric Safety Codes & the Institute of Electrical & Electronics Engineers (which is a safety risk), the high voltage switchgear is located outside, and there is no switching capability to reroute power for transformer maintenance — the only way to perform maintenance on the substation equipment is to shut power off completely.

Drinking water is supplied by seven on-base wells, which draw from local groundwater sources. The wells are in the Well Fields sub-district of the district, approximately two miles west of the Flightline. The wells convey water to the base water treatment plant, from which treated water is ultimately distributed to four service areas or pressure zones on the base. The Airfield District has its own water pressure zone (Flightline Pressure Zone). The base typically runs only three or four of the wells at any given time. According to the 2012 Natural Infrastructure Assessment Report (Beale 2012), the wells are capable of drawing 5.76 million gallons per day (gpd).

The base has its own water treatment plant that has capacity to treat up to five million gpd. Peak water demand is approximately four million gpd which results in one million gpd of headroom. The Natural Infrastructure Assessment Report concluded that the water supply system for the base is adequate, with a distribution system capacity of 125 percent of peak demand (Beale 2012).

3.9.3 Environmental Consequences

Proposed Action

Construction of a solar PV project and ancillary power control systems would replace some of the gas and electrical energy used on the installation with electricity produced by solar, thereby reducing the installation's reliance on fossil fuels. The Proposed Action may also improve energy security for the installation. On average, across the US, the capacity factor of solar is 24.5% (Freeing Energy, 2021). This means that solar panels will generate 24.5% of their potential output, assuming the sun shone perfectly brightly 24 hours a day. 2 megawatts (MW) of solar panels would generate 4,292 megawatt hours (MWh) of solar energy per year, although this value is impacted by the location of the array (how far north and amount of sun).

Increasing the capacity of the Doolittle Substation would provide the electrical support necessary to upgrade the high-altitude weapon systems infrastructure (2 megawatts), upsize the fuel hydrant system (0.5 megawatts), modernize the hangars (0.75 megawatts), expand munitions training (0.2 megawatts), and relocate the JP-8 fuel depot (0.2 megawatts). It also would enable enhanced interconnection to the national grid by allowing the use of dual 30 megawatt feeds, which would provide an increase of 60kV power to the entire installation. The Proposed Action would result in long-term and significantly beneficial impacts from the replacement of currently dilapidated electrical systems and associated infrastructure along with the introduction of new a new solar power source to provide energy resiliency to missions on base.

Water required for the Proposed Action would be for dust control associated with construction which would result in temporary, negligible adverse impacts to the water supply. Water would also be used to wash O&M equipment. Water would also be required for cleaning of the solar panels, but the amount would be negligible due to low frequency of maintenance. The Proposed Action would have no impact on drinking water, natural gas, or wastewater systems as none of these systems are located within the project area.

No Action Alternative

Implementing the No Action Alternative would result in a negligible, adverse impact on electricity utilities because of the continued use of power plants based on fossil fuel combustion. There would be no change to other existing utilities under the No Action Alternative. A moderate, long-term adverse impact to infrastructure would be expected under the No Action Alternative due to the continued deterioration of existing infrastructure and electrical systems which puts the affected missions at risk for power outages.

3.10 CULTURAL AND TRIBAL CULTURAL RESOURCES

3.10.1 Definition of the Resource

Cultural resources is an "umbrella term" for many heritage-related resources, including Native American 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. This section discusses project analysis of both 'Cultural Resources' under Federal statutes.

Federal Regulations

Several Federal laws and regulations govern protection of cultural resources, including the National Historic Preservation Act (NHPA) of 1966, as amended, the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), the Native American Graves Protection and Repatriation Act (1990), EO 13007 Indian Sacred Sites (1996), EO 11593 Protection and Enhancement of the Cultural Environment (1971), EO 13175 Consultation and Coordination with Indian Tribal Governments (2000) and EO 13287 Preserve America (2003). Cultural resources are commonly subdivided into archaeological resources (Native American 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 and its implementing regulations (36 CFR Part 800) require federal agencies to consult with stakeholders and federally-recognized Indian tribes when an undertaking has the potential to adversely affect properties of religious and/or cultural significance to Indian tribes. In addition, under Department of Defense Instruction 4710.02, *Interactions with Federally-Recognized Tribes*, and AFI 90-2002, *Air Force Interaction with Federally-Recognized Tribes*, federally-recognized tribes historically affiliated with lands in the vicinity of proposed and

alternative actions 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 NHPA defines historic properties as properties eligible for or listed in the National Register of Historic Places (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, Native American 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.

3.10.2 Existing Conditions

Cultural resources and Tribal Cultural Resources reported for Beale AFB include archaeological sites related to the Native American occupation of the area by the Southern Maidu (Nisenan) and their ancestors. Additional cultural resources at the base include 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 Cold War-era buildings (Beale AFB 2020a).

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 re-designated 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 1957/1958 of a runway and other facilities to support B-52 bombers of the 17th Bombardment Wing and KC-135 strato-tanker of 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 "Dragon Lady" 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 PAVE PAWS, a system designed to monitor potential Soviet missile launches. Today, Beale AFB is home to the 9th Reconnaissance Wing, 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 2020a).

Beale AFB submitted a consultation package with a survey, a NRHP eligibility determination, and a determination on the area of potential effects, to the California State Historic Preservation Officer (SHPO) for review and concurrence in January 2021. The SHPO concurred with the Area of Potential Effects definition, concurred that efforts to identify historic properties was adequate, concurred that the Doolittle Water Tower and the Doolittle Electrical Substation are not eligible for NRHP inclusion, and concurs that a finding of no historic properties affected is appropriate pursuant to 36 CFR Part 800.4 (see Appendix A). The SHPO also requested that Beale AFB notify the SHPO of any issues or substantive comments resulting from consultation with tribal partners.

Beale AFB has initiated consultation with the Nisenan and Maidu descendants of the region's indigenous populations. Specifically, this includes the Enterprise Rancheria, Shingle Springs Rancheria, Berry Creek Rancheria, Mooretown Rancheria, and United Auburn Indian Community. All of these tribes are federally-recognized. Additionally, Beale AFB's common practice is to consult non-federally recognized groups and interested parties. All consultation to Beale AFB's Native American partners was initiated via U.S. Mail in January 2021, and follow-up emails and telephone call communications were placed in January 2021. Letters to these communities, a contact record, and responses are included in Appendix A, Native American Consultations. United Auburn Indian Community stated no known resources are located in the APE but may exist in the vicinity. Requested to be informed of any findings. Mooretown Rancheria stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found. Shingle Springs Rancheria, stated no awareness of cultural resources in the area, however, would like continued consultation through updates, as the project progresses. Shingle Springs Rancheria also requested any and all completed record searches and surveys done for the project and to be informed about new information or human remains found during the project. Strawberry Valley Rancheria stated that no comments or questions came up after information had been circulated. Colfax-Todds Valley Consolidated Tribe stated unaware of any cultural resources in the area.

3.10.3 Environmental Consequences

Proposed Action

With implementation of protective measures, the Proposed Action would have no significant impact on cultural resources under NEPA or Tribal Cultural Resources. A cultural resources pedestrian survey was conducted, November 2020, covering the developed and undeveloped area where the 9.2 acre 2 MW solar photovoltaic array and microgrid with battery storage is proposed. With the current investigation, the aforementioned Doolittle Drive Water Tower (Tower) and Doolittle Drive Substation (Substation) were determined to have now achieved 50-years of age and here are treated as cultural resources. The Tower (constructed prior to 1964) and

Substation (constructed 1966) date to the Cold War era of development at Beale AFB. The substation would be demolished for this project. These historic resources have been evaluated and were determined ineligible for listing in the NRHP (Appendix A). These facilities need not be considered further. Through consultation under Section 106 with Beale AFB Native American partners, there are no known prehistoric sites or Native American Traditional Cultural Properties (TCPs) (Appendix E).

Mitigation Measures

Mitigation Measure 1: Cultural Resources Awareness Training - All construction personnel would receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources prior to starting work. Training would be provided at the start of the proposed construction and prior to any new worker's arrival on the proposed project site. 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. Upon completion of the orientation, employees would sign a form stating that they attended the program and understand all mitigation measures. These forms would be filed at Beale AFB offices and would be accessible to the appropriate resource agencies. It is the construction contractor's responsibility to seek training from the Beale AFB Environmental Office for personnel as they join the project.

Mitigation Measure 2: Tribal Monitor for Archaeological Resources. Tribal partners upon request may provide a tribal monitor to witness project activities. The tribal monitor would be provided by the requesting tribe. The Beale AFB Cultural Resources Manager would notify the interested tribal partners two weeks in advance of the project initiating earthwork, if requested. In the event of an inadvertent discovery of a suspected Tribal Cultural Resource, the tribal monitor is invited to inform the Beale AFB Cultural Resources Manager and Mitigation Measure 3 would be instituted.

Mitigation Measure 3: Inadvertent Discovery of Archaeological Resources.

In the event that human remains, artifacts, or suspected Tribal Cultural Resources were to be discovered during the course of any proposed ground-disturbing activity at the point of discovery, and within a 100-foot exclusionary area, would be immediately halted and the Beale AFB Cultural Resources Manager notified. Any inadvertent discovery would be initially assumed to be potentially eligible for the NRHP and afforded appropriate protection until determined to be otherwise. The Beale AFB Cultural Resources Manager would notify the Beale AFB Wing Commander, the SHPO, and the consulting tribal partners, if discovery is a suspected Tribal Cultural Resource. In the case of a suspected Tribal Cultural Resource, a tribal representative of the consulting tribal partners is invited to determine if the find is a Tribal Cultural Resource and make recommendations regarding treatment. Treatment measures determined to be necessary and feasible by the Beale AFB Cultural Resources Manager would be implemented. If the find proves to be human remains, additional legal responsibilities would be instituted, and the appropriate county coroner and Beale AFB Wing Commander,

would be notified by the Beale AFB Cultural Resources Manager (Beale AFB 2020: SOP 7.4). If the county coroner identifies the remains as Native American, they are required to notify the Native American Heritage Commission within 24 hours in accordance with California Health & Safety Code 7050.5(c). The Native American Heritage Commission would then identify the most likely descendants.

No Action Alternative

Under the No Action Alternative, there would be no impact to cultural resources. The Doolittle Power Station Repair & Upgrade would not be conducted. There would be no excavation that could potentially damage a known or unknown archaeological site and no historic structures would be changed.

4.0 CUMULATIVE AND OTHER EFFECTS

4.1 CUMULATIVE EFFECTS / MANDATORY FINDINGS OF SIGNIFICANCE

The CEQ regulations stipulate that the cumulative effects analysis of an EA should consider the potential environmental effects resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency or person undertakes such other actions" (40 CFR Part 1508.7). The CEQ guidance, in considering cumulative effects, affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope for the other actions and their interrelationship with a Proposed Action. The scope must consider other projects that coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions (CEQ 1997).

To identify cumulative effects, the analysis needs to address two questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas or past, present, or reasonably foreseeable actions?

2. If such a relationship exists, does an EA or an EIS reveal any potential significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could potentially be cumulatively affected. For the purposes of this analysis, the temporal span of the Proposed Action would be 1 to 2 years, which would encompass removal/replacement of the existing substation and construction of a new PV solar array. For most resources, the spatial areas for consideration of cumulative effects were confined to the Limits of Disturbance depicted in Figure 2-1, though a larger area was considered for some resources (e.g., air quality).

4.1.1 Projects Identified for Potential Cumulative Effects

Below is a list of projects, both future and ongoing, that have the potential for cumulative effects when accounting for the effects analyzed within this EA:

Beale-Western Area Power Administration (WAPA) Interconnection Project (BWIP)

This project intends to interconnect with WAPA's existing Cottonwood-Roseville line to provide Beale AFB with an electricity supply that would support their current and future missions. The project totals approximately 4.3 miles of transmission line; approximately 0.9 mile located off Beale AFB and 3.4 miles on Beale AFB. It would also consist of approximately 1.8 miles of overhead installation (0.9 mile off Beale AFB and 0.9 mile on Beale AFB) and 2.5 miles of underground installation (all within Beale AFB boundaries). The underground portion involving the 60 kV line is along the eastern side of Doolittle Dr and would connect to the work being performed under the Doolittle Power Station Repair and Upgrade project once it is executed. This project is currently in construction.

9th Physiological Support Squadron Building Storm Drainage System Project (B1029 Storm Drainage Project)

This project would repair the upstream storm drainage system to correct issues that lead to clogging and subsequent flooding of Building 1029. This drainage system is located south of the Grumman Ave drainage that is connected to the Proposed Action.

New Flightline Fitness Center

This project would construct an 80,729 square foot physical fitness center to meet the Air Force Joint Chiefs of Staff (AFCJCS) physical fitness requirements in the Flightline area. The fitness center would be sited in the southwestern quadrant of Doolittle Dr/Grumman Ave intersection which is directly kitty-corner from the Proposed Action.

AT&T FIRST NET Antenna Panel on Water Tower B1150

AT&T FIRST NET would provide a dedicated frequency for emergency telecommunications. This project would add antenna panels to the existing water tower counter siding Verizon's current broadband antennas on the handrail of the elevated tank. It would also construct a 600 square-foot ground equipment area on the southeastern side. This project is located within the water tower footprint that exists within the Proposed Action's boundary.

4.1.2 Cumulative Effects Analysis

Noise – During construction, noise at the site would only constitute a negligible localized increase in noise levels, and thus no significant cumulative impacts would be expected as a result of the Proposed Action.

Air Quality and Greenhouse Gasses – Use of construction equipment and vehicles associated with the Proposed Action would result in minimal adverse cumulative impacts related to air quality. Criteria air pollutants would be generated during construction but would not exceed the general conformity thresholds; therefore, no long-term adverse cumulative impacts are anticipated. Reduction in the reliance of fuel powered generators due to solar generation would result in beneficial cumulative effects to air quality and greenhouse gasses.

Aesthetics – The Proposed Action may result in cumulative impacts to aesthetics when compounded with the work described within the BWIP project as previously undisturbed grasslands would be converted into a PV solar array under the Proposed Action and would have additional electrical utilities constructed on them under the BWIP project. These cumulative impacts, although adverse in nature, would be negligible as electrical utilities already exist near the grassland areas that would be disturbed.

Soil Resources – Under the Proposed Action, the construction of the PV array and substation could create short-term, minor, adverse impacts to soil resources. When these impacts are considered as a compound to similar impacts created by other past, present, and reasonably foreseeable future actions they are not cumulatively significant as none of the actions involved

would remove a significant amount of soil and most of the soil being disturbed would be revegetated and have its original contours returned to the baseline.

Water Resources – Under the Proposed Action, the construction of additional impermeable surfaces and disturbance of the site's existing drainage pattern could lead to erosion, siltation, or flooding onsite or offsite. This could cause a cumulative impact to water resources when combined with the work described within both the B1029 Storm Drain project and the New Flightline Fitness Center project. However, with the implementation of Project Design Criteria and following the SWPPP, the adverse impact from these projects on water quality would be minor. The New Flightline Fitness Center would cause the lion's share of these impacts due to its entire footprint equating to the amount of impermeable surfaces that would be added — the other two projects would add a marginal fraction of impermeable surfaces.

Biological Resources – There are three other projects expected to occur within the vicinity of the Proposed Action that may also affect listed species. The BWIP, B1029 Storm Drainage Project, and the New Flightline Fitness Center.

The BWIP is a large project that includes the installation of an electrical transmission line with portions aboveground and underground, and a substation on Beale AFB to allow access to power from an existing Western Area Power Administration transmission line located west of the Base. The new line ends at a manhole in Doolittle Drive adjacent to the Proposed Action Area. The BWIP has already received an opinion from the USFWS (USFWS 2020b) and the portion of the project adjacent to the Proposed Action Area is not expected to adversely impact listed species.

The B1029 Storm Drainage project involves the repair of a culvert headwall and storm drainage basin downstream of the wetland complex adjacent to the Proposed Action Area, to prevent catastrophic flooding of nearby structures. This project will be in a future consultation with the USFWS due to its close proximity to listed species habitat (Beale 2022).

The New Flightline Fitness Center involves the construction of an 80,729 square foot physical fitness center in the grassland directly southwest of the Proposed Action.

The cumulative impacts of all four projects, including the Proposed Action, within the vicinity of the Proposed Action are not likely to increase adverse impacts to listed species, as the combined effects of all four would not significantly change the hydrology of the existing system, or significantly impact any listed species found on Beale AFB, and thus cumulative impacts can be discounted.

Removal of existing vegetation during construction for all projects would result in adverse cumulative impacts to vegetation. However, the BWIP, the B1029 Storm Drain Project, and the Proposed Action all intend on reseeding disturbed vegetation with a native seed mix after construction has concluded which would result in beneficial impacts that would effectively mitigate previous impacts imposed by each project. Reseeding under the New Flightline Fitness Center project is not an option as its entire footprint would be new construction. However, the cumulative effects of all four projects would not be significant as the New Flightline Fitness Center would have the greatest weight of adverse impacts to vegetation which would be minor to

moderate in effect. The four projects are also spatially separated to an extent that effects on vegetation from one to the other would be marginally connected.

Human Health and Safety – Temporary adverse cumulative impacts to human health and safety would be expected during construction of all four projects. However, long-term beneficial impacts would be expected with the improvement of electrical utility infrastructure under the Proposed Action and the BWIP which would lower the frequency of maintenance & repair events which are dangerous for personnel. The B1029 Storm Drain project would also cumulatively add to the long-term beneficial impacts by stopping flood waters from overtopping Doolittle Dr and putting motorists in danger. Additionally, the AT&T FIRST NET would provide a dedicated frequency for emergency telecommunications which would have long-term beneficial impacts to human health & safety across base.

Utilities and Infrastructure – Long-term beneficial impacts to electrical utilities are expected under the Proposed Action and the BWIP due to modernization and replacement of existing dilapidated utilities and associated infrastructure as well as increased resilience towards power outage events. Significant, long-term beneficial cumulative impacts to electrical utilities and infrastructure would be expected.

Hazardous Materials, Hazardous Wastes, Non-Hazardous Wastes – The Proposed Action and the BWIP would create short-term, negligible impacts to hazardous material and non-hazardous waste through the use of hazardous materials and the generation of solid wastes. Cumulative impacts are expected to be negligible.

Cultural and Tribal Cultural Resources – The implementation of mitigation measures identified under the Proposed Action and the other four projects would help prevent significant impacts on any unknown cultural resources. Cumulative impacts to cultural resources would not be anticipated.

4.2 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects would result from implementation of the Proposed Action. These effects would not anticipated to be significant.

Air Quality - The Proposed Action would result in negligible unavoidable impacts due to the use of construction equipment and travel along the access roads. Following completion of the proposed project, the air quality would fall to a level slightly lower than existing ambient levels due to a reduced reliance on generators for backup power.

Soil Resources - The Proposed Action would result in minor adverse impacts to soils due to compaction from the use of construction vehicles. Impacts would also result from soil disturbance from the creation of the proposed access roads, excavation, and removal of vegetation. Although unavoidable, effects on soil at the proposed project site would not be considered significant or long-term.

Vegetation and Wildlife - The Proposed Action would result in unavoidable adverse effects to vegetation from the clearing of vegetation for construction, although these effects would be

temporary as replacement of the vegetation would ensue once construction is completed. Some areas, however, won't be reseeded as paved surface shall replace them. This would result in a permanent loss of 0.56 acres of grassland and therefore a permanent loss of 0.56 acres of potential habitat for wildlife.

Human Health and Safety - The Proposed Action would result in short-term, minor adverse impacts to the safety of contractors due to safety risks associated with working with construction equipment. Once construction has concluded, long-term beneficial impacts to human health & safety would be expected due to a reduced need to perform electrical maintenance.

4.3 COMPATIBILITY OF PROPOSED ACTION AND ALTERNATIVES WITH THE FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

The Proposed Action would be consistent with existing and future land uses. The Proposed Action would replace the existing substation with a new one and would construct a new photovoltaic solar array.

4.4 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. Short-term effects would be those associated with the construction activities to construct the solar microgrid, battery storage, and replacement substation. The long-term enhancement of productivity would be those effects associated with mitigation of historical outages of the utility lines and a decreased reliance of fossil fuel generators.

The Proposed Action represents an enhancement of long-term productivity for operations at the Beale AFB. The negative effects of short-term operational changes during construction activities would be minor compared to the positive benefits from generation of renewable energy at Beale AFB. Immediate and long-term benefits would be realized for operation and maintenance after completion of the Proposed Action.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action. The short-term irreversible commitments of resources that would occur under the Proposed Action would include planning and engineering costs, building materials and supplies and their cost, use of energy resources during construction, labor, generation of fugitive dust emissions, and creation of temporary construction noise. No long-term irretrievable commitments of resources would result.

5.0 LIST OF PREPARERS AND REVIEWERS

This EA was prepared by the staff of the Beale AFB Environmental Element (9th CES/CEIE) and GIS support from the Colorado State University's Center for Environmental Management Military Lands (CEMML). The individuals who contributed to the preparation of this document are listed in Table 5-1 below.

Table 5-1: Contributors and Developers to the Doolittle Power Station Repair & Upgrade Project EA

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APPENDIX A CORRESPONDENCE AND COORDINATION

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Native American Contacts

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Mooretown Rancheria
Mr. Benjamin Clark, Chairperson
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Strawberry Valley Rancheria
Ms. Tina Goodwin, Chairperson
Mr. Scott Dinsmore, Tribal Chair Member
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Berry Creek Rancheria
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Colfax-Todds Valley Consolidated Tribe
Ms. Pamela Cubbler, Treasurer
Mr. Clyde Prout, Chairperson
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Auburn, CA 95604

United Auburn Indian Community
Mr. Gene Whitehouse, Chairperson
Mr. Matthew Moore, THPO
10720 Indian Hill Road
Auburn, CA, 95603

Konkow Valley Band of Maidu
Ms. Jessica Lopez, Chairperson
Mr. Eric S. Josephson, NAGPRA Coordinator
2086 North Villa Street
Palermo, CA 95968

Shingle Springs Rancheria
Ms. Regina Cuellar, Chairperson
Ms. Annie Jones, Vice Chairperson
Mr. Daniel Fonseca, Cultural Director
PO Box 1340
Shingle Springs, CA 95682

Butte Tribal Council
Mr. Ren Reynolds, Chairperson
1671 Mt. Ida Road
Oroville, CA 95966

REPRESENTATIVE NATIVE AMERICAN IICEP LETTER

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Julia L. Riley
Environmental Element Chief
9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB CA 95903-1616

JUN 2 3 2022

Mr. Francis Steele
Chairperson
Berry Creek Rancheria
5 Tyme Way
Oroville, CA 95966

Dear Mr. Steele

The United States Air Force (USAF) is in the process of preparing a Draft Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality Regulations (40 Code of Federal Regulations 1500-1508); and USAF Environmental Impact Analysis Process (32 Code of Federal Regulations Part 989).

Under the Proposed Action, the USAF is seeking to demolish the existing Doolittle Electrical Substation and replace it with a new electrical substation and switchyard which would connect to the underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines. The Proposed Action also includes the construction of a new 9.5 acre 2 megawatt (MW) photovoltaic solar array field, and a 4 MW smart microgrid with battery energy storage system surrounded by chain-link security perimeter fencing on undeveloped land.

The Environmental Assessment will assess the environmental consequences of two alternative options for the Proposed Action: repairing and upgrading the Doolittle Power Station alternative and the No Action Alternative.

The USAF requests your input on the Proposed Action as part of the environmental assessment process with relevant agencies, property owners, and stakeholders. The USAF is contacting you to notify you of the Proposed Action and invites you to provide comments. This is the initial step in the NEPA review process, and a draft of the Environmental Assessment will be released once specific details on each Alternative have been developed.

This is separate from and in addition to government-to-government consultation offered under Section 106 of the National Historic Preservation Act (54 United States Code (U.S.C.) § 306108) and 36 Code of Federal Regulations (CFR) Part 800. The Section 106 consultation process for this project was initiated last year in January 2021 under the title "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project".

Please address all questions and comments to Mr. Chantz Risse, NEPA Program Manager, at (530) 634-9568, chantz.risse.1@us.af.mil, 9 CES/CEIE, 6425 B Street, Bldg. 25390, Beale AFB, CA 95903-1708.

Sincerely

JULIA L. RILEY, GS-13, DAF
Environmental Element Chief
9th Civil Engineer Squadron

AGENCY CONTACTS

FEDERAL CONTACTS

U.S. Environmental Protection Agency,
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U.S. Department of the Interior
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Marysville, CA 95901

Yuba County Board of Supervisors
District 1 Supervisor
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Yuba City, CA 95991

Yuba County Water Agency
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REPRESENTATIVE AGENCY IICEP LETTER

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

JUN 2 3 2022

MEMORANDUM FOR CALIFORNIA AIR RESOURCES BOARD
AIR QUALITY AND TRANSPORTATION DIVISION
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Notification and Solicitation of Comments for Doolittle Power Station Repair & Upgrade Project on Beale Air Force Base, Yuba County, California

1. The United States Air Force (USAF) is in the process of preparing a Draft Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality Regulations (40 Code of Federal Regulations 1500-1508); and USAF *Environmental Impact Analysis Process* (32 Code of Federal Regulations Part 989).

2. Under the Proposed Action, the USAF is seeking to demolish the existing Doolittle Substation and replace it with a new substation & switchyard which would connect to the underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines. The Proposed Action also includes the construction of a new 9.5 acre 2 megawatt (MW) photovoltaic solar array field, and a 4 MW smart microgrid with battery energy storage system surrounded by chain-link security perimeter fencing on undeveloped land.

3. The Environmental Assessment will assess the environmental consequences of two alternative options for the Proposed Action: repairing and upgrading the Doolittle Power Station alternative and the No Action Alternative.

4. The USAF requests your input on the Proposed Action as part of the consultation process with relevant agencies, property owners, and stakeholders. This process is formally referred to as the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process. Through this notice, the USAF is contacting you to notify you of the Proposed Action and to solicit comments. This is the initial step in the review process, and a draft of the Environmental Assessment will be released once specific details on each Alternative have been developed.

5. Please address all questions and comments to Mr. Chantz Risse, NEPA Program Manager, at (530) 634-9568, chantz.risse.1@us.af.mil, 9 CES/CEIE, 6425 B Street, Bldg. 25390, Beale AFB, CA 95903-1708.

JULIA L. RILEY, GS-13, DAF
Environmental Element Chief
9th Civil Engineer Squadron

RESPONSES TO IICEP NOTIFICATIONS

U.S. FISH AND WILDLIFE SERVICE INITIATION OF INFORMAL CONSULTATION

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE
ATTN: MR. MICHAEL FRIS
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1846

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Informal Consultation – Doolittle Power Station Repair/Upgrade & Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base (AFB), California

1. The intent of this letter is to submit an informal biological assessment (BA) to the U.S. Fish and Wildlife Service (USFWS) to initiate consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code [U.S.C.] 1536) for the Doolittle Power Station Repair/Upgrade & Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale AFB, California. Beale AFB has prepared an informal BA document summarizing the details of the project and effects (Attachment).

2. The activities that will be authorized under this informal BA may affect, not likely to adversely affect vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*) or monarch butterfly (*Danaus plexippus*). Beale AFB does not believe this Proposed Action is likely to affect other federally-listed species occurring in the general region of the Action Area on Beale AFB. This determination is based on field observations, prior consultations with USFWS, and past experience with other projects at Beale AFB.

3. Please review the enclosed documents and if you have comments or need additional information on this project, contact Eli Rose, Beale AFB Natural & Cultural Resources Program Manager, at (530) 634-2382 or eli.rose.1@us.af.mil.

BAKER.BLAZE.O.1504509784
Digitally signed by BAKER.BLAZE.O.1504509784
Date: 2022.05.18 11:08:50 -07'00'

BLAZE O. BAKER, DAFC
Installation Management Flight Chief

Attachment:
Informal Consultation – Doolittle Power Station Repair/Upgrade & Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base, California

DOOLITTLE POWER STATION REPAIR/UPGRADE & INSTALLATION OF 2 MEGAWATT PHOTO VOLTAIC SOLAR ARRAY & MICROGRID WITH BATTERY STORAGE AT BEALE AIR FORCE BASE, CALIFORNIA

Informal Consultation
(IPaC Project Code #2022-0044492)

MAY 2022

PREPARED BY:

BEALE AIR FORCE BASE
9 CES/CEIE
6425 B STREET
BEALE AFB, CA 95903-1712

CONTACT:
Eli Rose
NATURAL RESOURCES MANAGER
(530) 634-2382
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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
CM	Avoidance and Minimization Measure
BESS	Battery Energy Storage System
BWIP	Beale-Western Area Power Administration Interconnection Project
Dr	Drive
ESA	Endangered Species Act
ft	feet
HVAC	heating, ventilation, and air conditioning
IPaC	Information, Planning, and Consultation System
lbs	pounds
LiDAR	Light Detection and Ranging
MW	Megawatt
PV	Photo Voltaic
USFWS/Service	United States Fish and Wildlife Service

1.0 INTRODUCTION

The purpose of this informal consultation is to review the proposed Doolittle Power Station Repair/Upgrade and Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage (Proposed Action) at Beale Air Force Base (AFB) in sufficient detail to determine to what extent the Proposed Action may affect threatened and endangered species, and designated or proposed critical habitats under the Endangered Species Act (ESA). This informal consultation has been prepared for the United States Fish and Wildlife Service (USFWS) in accordance with legal requirements set forth under regulations for implementing Section 7 of the ESA (50 CFR 402.13; 16 USC 1536 (c)). As noted on the official USFWS planning lists, there is no designated or proposed critical habitat for any species within the Proposed Action Area (USFWS 2020a).

The Proposed Action Area is within the boundary of Beale AFB, Yuba County, California. The purpose of the Proposed Action is to improve electrical infrastructure and provide electrical energy resiliency to critical Global Hawk Campus systems at Beale AFB. The Proposed Action includes upgrades to the Doolittle Substation, the installation of a new 9.5-acre photo voltaic (PV) solar array, and a microgrid with battery energy storage system (BESS). Construction consists of the following:

- Demolish existing Doolittle Substation
- Construct new switch yard with cinderblock perimeter wall
- Connect underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines
- Install a new 9.5 acre 2 megawatt (MW) PV solar array field with chain–link security perimeter fencing
- Install a new prefabricated structure with heating, ventilation, and air conditioning (HVAC) to house the new microgrid and BESS
- Pave two new parking spaces
- Install an aggregate driveway on Grumman Avenue and improve and widen pavements of the existing driveway on Doolittle Drive and around the water tank
- Alter an existing man-made drainage ditch with a water tower drainpipe valve to prevent site erosion from tank draining activities
- Install underground conduit

The following listed species may be affected by the Proposed Action and are addressed in this informal consultation:

- Vernal pool fairy shrimp (*Branchinecta lynchi*) – **Federally Threatened**
- Vernal pool tadpole shrimp (*Lepidurus packardi*) – **Federally Endangered**
- Monarch Butterfly (*Danaus plexippus*) – **Candidate Species**

The following species were eliminated from consideration for the reasons described in section 4.6 of this document:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)* – **Federally Threatened**
- Conservancy fairy shrimp (*Branchinecta conservatio)* – **Federally Endangered**
- California red-legged frog (*Rana draytonii)* – **Federally Threatened**
- Western Yellow-billed Cuckoo (*Coccyzus americanus*) – **Federally Threatened**

There are no known occurrences of federally listed species in or within 250 feet (ft) of the Action Area, but there are features considered potential habitat. Adherence to the Avoidance and Minimization Measures (CMs) included in the project description would prevent the Proposed Action from negatively impacting listed species and their habitats. For this reason, Beale AFB believes the Proposed Action warrants a determination of May Affect, Not Likely to Adversely Affect.

2.0 DESCRIPTION OF PROPOSED ACTION

2.1 Proposed Action

2.1.1 Overview

The PV solar array would be constructed on undeveloped land adjacent to the Doolittle Substation and the water tower east of Doolittle Drive. The proposed project location was selected because it is adjacent to the Doolittle Substation that supplies power to the flightline. The Proposed Action would occur on approximately 10 acres of land east and south of the existing Doolittle Substation and the Water Tower, and within the proposed, approved, designated location (Figure 1). The installation of the PV solar array, microgrid, and BESS adjacent to the Doolittle Substation, was determined to be the best location due to the proximity to the substation that provides energy to the Global Hawk Campus. Additionally, the proposed site includes disturbed, level to southwest sloped terrain, for natural stormwater runoff and solar efficiency.

The Proposed Action consists of the demolition of the existing Doolittle Substation, construction of a new switchyard surrounded by a cinder block wall, the installation of a new PV solar array, and a prefabricated structure with HVAC to house the new microgrid and BESS. Upgrades to the Doolittle Substation would consist of replacing transformers, switchgears, and adding a control room in a new switchyard constructed over and extending east of the existing substation. In addition, these upgrades would include trenching to run underground power and fiber communication lines from the Beale-Western Area Power Administration Interconnection Project (BWIP) transmission line project, in Doolittle Drive, to interface with the switchyard from the water tower driveway. The Proposed Action consists of the construction of a 2 MW PV solar array and installation of a prefabricated structure with HVAC to house the new 4 MW BESS that includes a smart microgrid to distribute renewable energy through the primary circuitry to the Global Hawk Campus. Currently, Global Hawk flying activities at Beale AFB are at risk of power failure and periods of non-operation in the event of a power failure because the mission lacks reliable backup power sources.

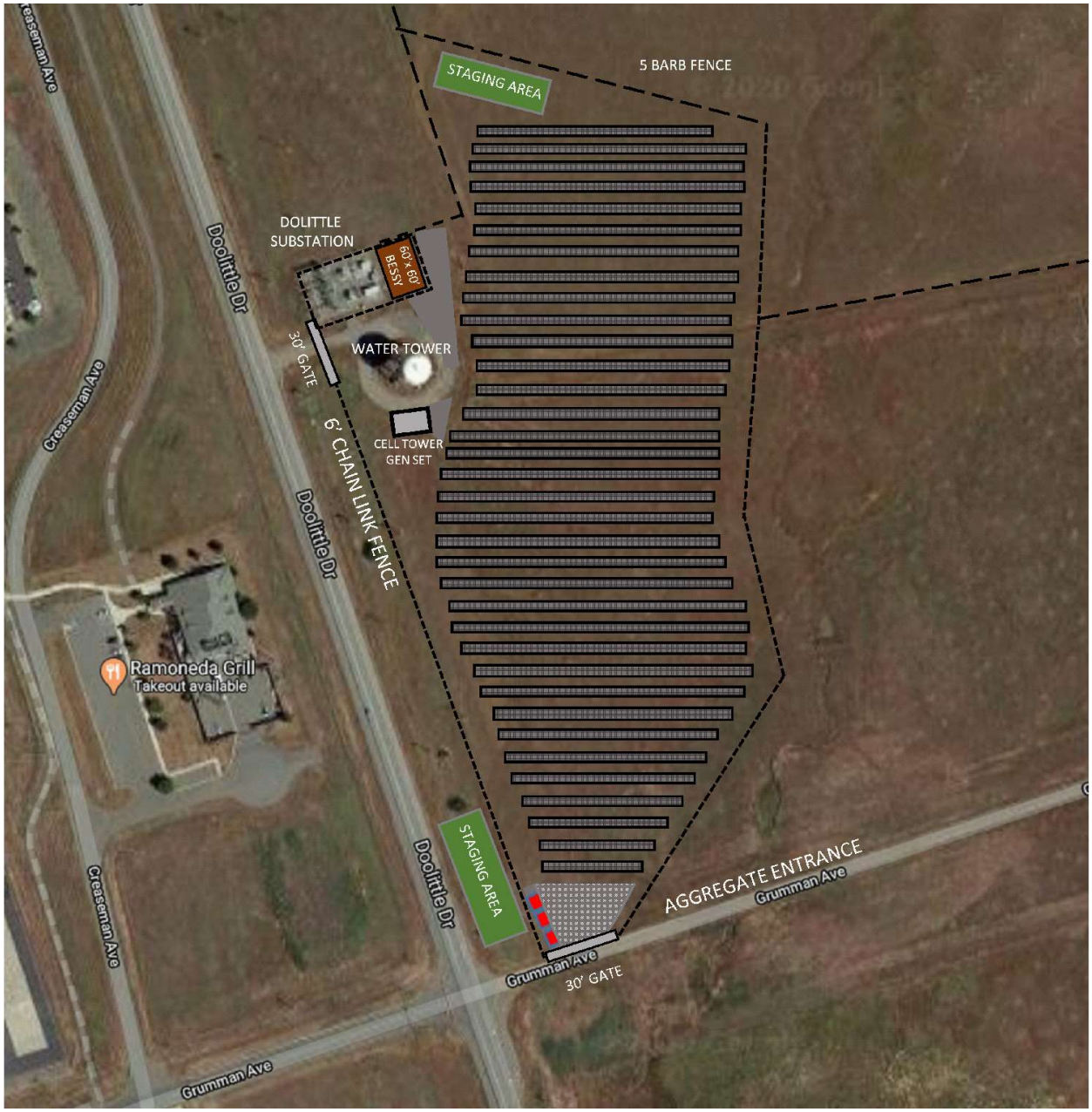

Figure 1: Overview of the Proposed Action Area, Beale AFB, California.

2.1.2 Demolition and Site Preparation

Site demolition would include existing chain-link and barbed wire fencing, electrical power equipment, power cabling, some pavement removal to construct paved entrances, and water tank drainpipe valve removal in the ditch line. The existing Doolittle Substation would be completely demolished before construction of the new switchyard is initiated, since it would be located on the existing substation footprint. All components shall be disposed of, or recycled off-Base. The 'B' and 'C' street substations shall provide electrical power to maintain the mission on the flightline during construction of the new Doolittle Power Station.

The existing five-strand barbed wire cattle fence would be relocated to make room for the installation of the PV solar panels located east and south of the Doolittle Substation (Figure 1). Preparation for the installation of the PV solar array would include grading portions of the area to lay a suitable aggregate (i.e., gravel, crushed granite, etc.) and pavements (i.e., concrete, asphalt) in three locations (shown as gray polygons in Figure 1). This would provide access for maintenance vehicles and to the new structures. All borrow soil would be tested for contaminants and approved by 9 CES/CEI prior to use. All excess materials would be tested for contaminants and disposed at an approved location. The contractor would submit material certification for approval prior to placement. There is an underground pipe originating from the water tank that ends at a concrete retainer wall at the top of a man-made drainage ditch. The drainpipe ends with a flapper eight inches beyond the concrete retainer wall. The drainpipe is used only if the water tower experiences damage and requires draining. The drainpipe would be extended approximately 25 ft beneath the proposed solar array and would include a flapper and diverter to reduce water flow pressure. Water from the site drains towards the wetland drainage, through the culverts under Grumman Avenue, then flows through culverts under Doolittle Drive.

2.1.3 Construction

Preparation of the area would include grading the portions around the designated solar panel rows and portions of the new switchyard to provide passageways for maintenance and emergency vehicles to pass, excavating for panel foundations, and trenching for utility lines throughout the site.

Creating site access would include a paved ingress/egress on Doolittle Drive (widening of the existing driveway) and creating an aggregate ingress/egress on Grumman Avenue. A 30-ft wide gate would be installed at each access location. Two new paved parking spaces would be included for utility vehicles near the existing water tower. A new 6-ft chain-link security fence would be installed around the perimeter of the proposed site.

The solar panels of the PV array system would be installed at an angle facing southward to maximize sun exposure and potential power generation. The solar panel rows would be separated to ensure utility vehicles can access the panel assemblies during installation and maintenance. In addition to space between solar panel rows, there would be space around their perimeter to allow for vehicle access. These access areas/routes, although drivable during the dry season, would be managed with native low-growing vegetation to prevent surface erosion. Blanket mulch would be used to help restore vegetation and to protect from erosion resulting from drips off of panels. No gravel or herbicide would be used beneath the solar panels during site preparation or future site maintenance. Because the center rows and perimeter would remain vegetated, there would be very little new impervious surface created by the Proposed Action. The specific layout of the PV modules on the support structures would be determined during design. All modules and support

structures would be within the designated boundary (Figure 1), and therefore different layouts would not alter the environmental effects disclosed in Section 4.

The new Doolittle Switchyard would be built within the footprint of the existing substation and extend eastward. The new switchyard would include new transformers, switch gears, and a prefabricated structure to house the microgrid and BESS. A concrete pad would be built inside the switchyard for the prefabricated structure and transformers. The prefabricated structure with HVAC would house the Smart Microgrid, BESS, and electrical distribution switchgear. A 6-ft high cinder block wall with raccoon exclusion on top would be built around the perimeter of the new switchyard. The new switchyard would have trenched underground conduits and power cables interconnected to the PV array, the incoming power supply lines, and outgoing power lines to the Global Hawk Campus.

A new aggregate apron would serve as an entrance south of the solar array along Grumman Avenue Concrete pads would be constructed where PV inverters and transformers are installed. Underground conduit and cabling would be installed up to 30 to 36 inches deep to interconnect each panel row, inverters, transformers, and the switchgear. Revegetation of disturbed areas would consist of regionally native plants in a Beale AFB approved native seed mix.

The design would ensure that excess storm water runoff resulting from construction would not adversely affect surrounding areas. The storm drainage system could include, but would not be limited to, inlets, pipes, culverts, earthen swales, and splash blocks.

2.1.4 Staging Area

The staging area and laydown for the Proposed Action would occur within the Proposed Action Area (see Figure 1) and would have erosion control measures installed (e.g., wattles, silt fence) to prevent impacts to nearby wetlands.

2.1.5 Access Routes

The Proposed Action Area would be accessed via the driveway off of Doolittle Dr., along Doolittle Dr., and the new entrance off of Grumman Avenue.

2.1.6 Maintenance

Maintenance associated with the Proposed Action would consist of cleaning the solar arrays and mowing/weed eating the PV field at least once a year to ensure vegetation does not cover solar panels and to reduce fire hazards. Other than the access points, no gravel or herbicide will be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field.

2.2 Avoidance and Minimization Measures

The Proposed Action would implement applicable Avoidance and Minimization Measures (AMM's) based upon similar construction projects conducted on Base that have received USFWS concurrence. The assessment of the potential impacts of the Proposed Action is based on the implementation of these measures.

Beale AFB and its contractors would implement the following AMM's to reduce the potential for adverse effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, monarch butterflies, and their habitat. For the purposes of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant

biological field and who has demonstrated knowledge of and experience with venal pool and monarch conservation. The NRM will review the resume(s) for sufficiency prior to submitting to the Service. The Service has five (5) working days to refuse the submittal.

Note: USFWS is referred to as the Service in this sub-section.

2.2.1 General Measures

1. **Pre-project Surveys:** A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the qualified biologist will contact the Beale AFB NRM who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.
2. **Biological Monitor:** A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these Avoidance and Minimization Measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the qualified biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.
3. **Conservation Measure Review for Project Managers (at project kickoff):** Beale NRM will provide Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel during pre-construction kickoff meeting. Contractor project managers will acknowledge review and understanding of Avoidance and Minimization Measures by signature.
4. **Environmental Awareness Training:** Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the 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 maintained at Beale AFB and will be accessible to the appropriate resource agencies.
5. **Limited Operations Period:** No work will be conducted between 1 November and 1 May, unless specifically approved by the Beale AFB NRM and the Service; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1

November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.

6. **Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas:** Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.
7. **Location of Work and Staging Areas:** All materials, vehicle parking and staging areas shall be designated by the Beale Environmental Office and located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.
8. **Minimization of Off-Road Access Routes:** Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.
9. **Additional Access Routes:** If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist to minimize impacts to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.
10. **Trenches and Holes:** No trenches or holes greater than 6 inches deep will be left open at the end of the day and will be covered (for example plywood, or other material) or an egress will be provided in coordination with NRM to prevent trapping animals.. Trenched areas and holes will be compacted and restored to normal grade.
11. **Revegetation:** All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.

12. **Seed Mixes to Support Native Pollinators:** Include in seed mixes annual and short-lived perennial native forb species; these seeds will bloom in the first year and provide forage for native bees. Native wildflower mixes that bloom during different times of the year and in different flower colors will be given the highest preference.
13. **Suitable Material:** No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.
14. **Speed Limits:** All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.
15. **Pets/Firearms:** No pets or nonmilitary firearms will be allowed in the Action Area during proposed project implementation.
16. **Garbage Removal:** During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. 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.
17. **Green Waste Disposal:** All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.
18. **Invasive Species:** A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the qualified biologist and may be rejected if the qualified biologist determines that it is has not been adequately cleaned.
19. **Invasive Species Monitoring:** The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.
20. **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 will occur on a paved surface or at least 100 feet from any wetland feature/drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
21. **Spill Plan:** A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment/vehicles will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers

will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.

22. **Equipment Condition:** Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left on site, or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.
23. **Fire Prevention and Suppression Plan:** A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the Beale AFB NRM for Wildland Fire Chief approval.
24. **Erosion Control Systems:** Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.
25. **Dust Control:** All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools. No chemical dust control or tackifiers will be used adjacent to vernal pools.
26. **Excess Soil Protection:** Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.
27. **Use of Excavated Soil on Base:** If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.
28. **Disposal of Excavated Soil:** All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.
29. **Upland Buffers:** Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced, or preserved Waters of the US. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.
30. **Report Kills/Injuries:** Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological

monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within 3 business days and will provide written notification via email of the incident within 5 business days.

31. **Trenching Controls:** In unimproved areas, the top 6 to 12 inches of the trench or hole should normally be backfilled with topsoil from the trench.
32. **Pesticides:** If USAF-approved pesticides (herbicides, insecticides, etc) are used at the project site, they may only be applied by a DoD or California certified/licensed applicator.
33. **Temporary Fills:** Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.
34. **Riprap:** The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure.
35. **Fills within 100-year Floodplain**: The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

2.2.2 Wetland and Vernal Pool Measures

1. **Wetland Limited Operations Period:** No work will be conducted within 100 feet of streams or wetland features between 1 November and 1 May.
2. **Wetland Erosion Control:** All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.
3. **Wetland Pre-project Vegetation Clearing:** If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the wetland. Mechanical clearing of vegetation is prohibited during the wet season.
4. **Topsoil Stockpile:** For intrusive actions/investigations in branchiopod habitat, the topsoil to a depth of approximately 1 inch will be saved and set aside/containerized to be placed back on top of the excavated site to minimize the number of vernal pool crustacean cysts damaged. All material below the topsoil that is excavated will be removed from the habitat feature and retained/containerized. Once work is completed, holes will be backfilled with the same soil to the original grade and compacted once removal is complete. These locations will not be seeded. Stockpiled soils will be covered and surrounded by straw wattles at all times.
5. **Wetland Feature Protection:** Intrusive work adjacent to or within branchiopod habitat shall have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.

6. **Road Surfaces and Shoulders:** Projects that occur on road surfaces and along road shoulders will avoid direct impacts to wetland habitats, including roadside ditches that act as seasonal wetlands. Roadside herbicide application will avoid ditches and other potential fairy shrimp and tadpole shrimp habitat. Roadside mechanical or hand removal will avoid leaving biomass in ditches or other fairy shrimp and tadpole shrimp habitat.
7. **Herbicides In and Near Vernal Pools:** No herbicide will be sprayed within vernal pools during the wet or dry season. If herbicide spraying is required near vernal pool species' habitat, only herbicides and adjuvants approved for use in aquatic environments will be used. Buffer distances outlined in Table 1 in Biological Assessment for Invasive Plant Species Management at Beale Air Force Base, California will be followed. A qualified biologist who is supervising or conducting treatment may, on a case by case scenario, and after approval with the NRM and coordination with the Service, reduce these buffers.
8. **Herbicides on Vernal Pool Boundary:** If necessary to meet conservation goals, non-POEA glyphosate may be applied up to the boundary of a vernal pool when the pools and surrounding habitat is dry. All applications must be conducted by a qualified biologist, and after approval of the NRM and coordination with the Service.
9. **Vernal Pool Invasive Species Removal:** If invasive species removal is required within a vernal pool (e.g., Glyceria infestations), only hand-pulling or hand tools will be used, with the minimum amount of soil disturbance required to remove target invasive species. All non-native biomass removed will be disposed of in a landfill. All soil will be replaced/left in the vernal pool it came from.
10. **Prescribed Fire Hand-lines:** No hand-lines will be cut within 50 feet of wetlands during a prescribed fire conducted near or within potential fairy shrimp and tadpole shrimp habitat. Only black lining (back burning a perimeter) and wet lining (mowing and then wetting an area to prevent combustion) will be used to create fire lines within 50 feet of wetlands.

2.2.3 Monarch Butterfly Measures

1. **Pre-Project Survey:** Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.
2. **Milkweed Awareness Training:** As part of the Environmental Awareness Training, all individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a qualified biologist on the identification of milkweed plants and a description of both adult and larval monarchs in order to avoid milkweed and monarchs during all activities.
3. **Herbicide Use within 50 feet of Milkweed:** Unoccupied actively growing milkweed will be avoided by a minimum of two feet during the application of herbicides. Herbicide application within 50 feet of a milkweed plant will be conducted with a low-pressure backpack sprayer to reduce the risk of drift.

4. **Herbicide Use near Occupied Monarch Habitat:** No broad-spectrum herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.
5. **Pre-emergent Herbicide Use:** No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).
6. **Milkweed Mitigation:** Milkweed numbers and species will be assessed in project areas where impacts to milkweed may occur due to construction or restoration activities.
    a. The impacts of milkweed removal in known monarch breeding areas will be minimized by planting equivalent milkweed species at a 3:1 ratio. The impacts of milkweed removal in habitat not known to be used by monarchs will be minimized by planting milkweed at a 2:1 ratio.
    b. Areas within or adjacent to occupied habitat (within 250 feet of a documented monarch breeding or roosting location), lacking extensive milkweed, where successful control of invasive species has been achieved, will be prioritized for planting.
    c. All newly planted milkweed will be regionally native and preferably of the same species removed. Milkweed species selection and replanting location will be at the discretion of the NRM.
7. **Milkweed Buffer:** A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and ground-disturbing activities to protect monarch breeding habitat.
8. **Preservation of Trees:** Willows and other trees known to or with the potential to be (within occupied habitat) used as roosting sites will be avoided during construction and maintenance activities.
    a. Except for cut stump and wiping of target species, no herbicide application will occur during the active season of monarchs (15 March through 31 October) within 50 feet of known or potential roosting sites.
    b. No trimming of trees used by monarchs as roosting sites will occur during the active season (15 March through 31 October).
9. **Reseeding/Habitat Enhancement:** Projects within 250 feet to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans. Reseeding and other habitat improvements will be prioritized away from roads and will avoid areas of frequent human activity to minimize the potential for incidental take. All seed mixes must be approved by the NRM.
10. **Mowing:** Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15 March through 31 October).
    a. If mowing must be conducted (i.e., for habitat restoration projects benefiting Monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.
    b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.

11. **Prescribed Fire Treatment and Milkweed:** No prescribed fire treatment will occur within 100 feet of habitat occupied by monarchs during the active monarch season (15 March through 31 October).
12. **Grazing and Milkweed:** Riparian areas and drainages with known habitat used by monarchs (e.g., milkweed stands and roosting sites along Dry Creek, Hutchinson Creek) will be excluded from grazing. Heavy cattle or horse grazing in areas with low residual dry matter (below approximately 1000-1200 pounds per acre (lbs/ac)) or grazing with sheep and goats would not occur in locations known to be occupied by monarchs during the active season (15 March through 31 November) to prevent soil compaction and trampling of milkweeds.

3.0 AFFECTED ENVIRONMENT

Beale AFB is in Yuba County, approximately 40 miles north of Sacramento. The Action Area is on the Brown's Valley 7.5-minute U.S. Geological Survey topographic quadrangle. The Proposed Action Area is located on the eastern side of Doolittle Drive, across from the flightline (Figure 2).

3.1 Vegetative Community

The vegetation in and around the Action Area is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*). Interspersed with the grassland are a few ephemeral wetlands, which may provide habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. The dominant wetland plant taxa at Beale AFB are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castillega campestris*), and ornate downingia (*Downingia ornatissima*).

3.2 Site Soils

The soil type in the Action Area consist primarily of Redding-Corning Complex, 3 to 8 % slopes (Figure 3). Redding-Corning Complex soils are categorized as a well-drained soil with a low runoff classification. These soils are typically found in high fan terraces with slopes of 3 to 8 %. The hazard of soil erosion in this complex is slight. The depth to restrictive layer, typically a duripan, is from 20 to 40 inches (USDA 1998).

In March 2008, Beale AFB conducted a soil aquitard study to determine soil aquitard depth Base-wide. Various geological formations on Beale AFB feature soil aquitards, which are defined as subsurface soil horizons that restrict root growth and inhibit movement of water through the horizon. Results from this study indicate a high degree of variation in depth to soil aquitard, including within similar geomorphic formations (URS 2008).

3.3 Site Topography

The topography of the area is moderately sloped, ranging from 2 to 8 %. The Proposed Action would occur on a largely undisturbed area of upland annual grassland. The site slopes east and south towards the drainage that runs beneath Grumman Avenue.

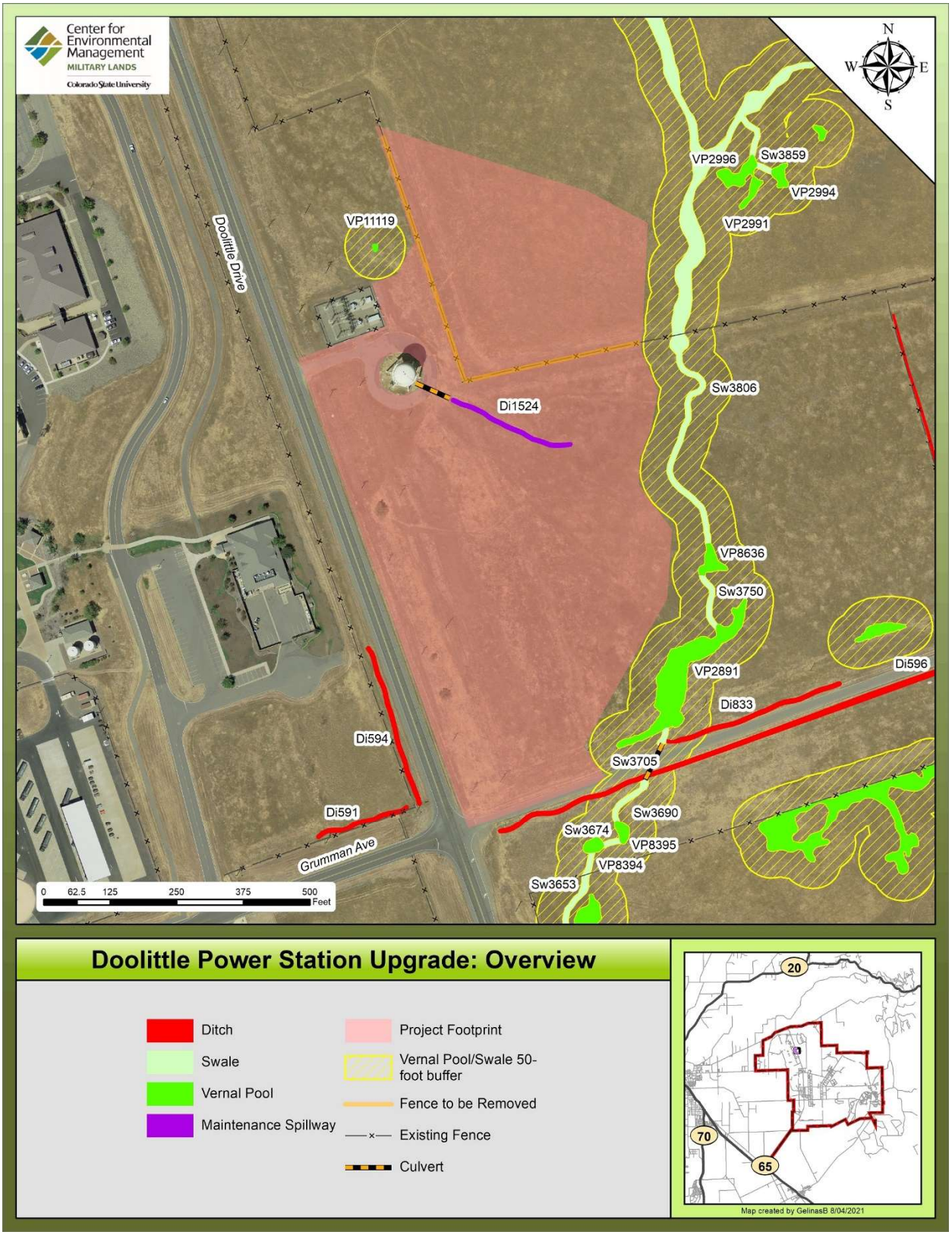

Figure 2: Potential Endangered Species Habitat within 250 ft of the Proposed Action Area, Beale AFB, California.

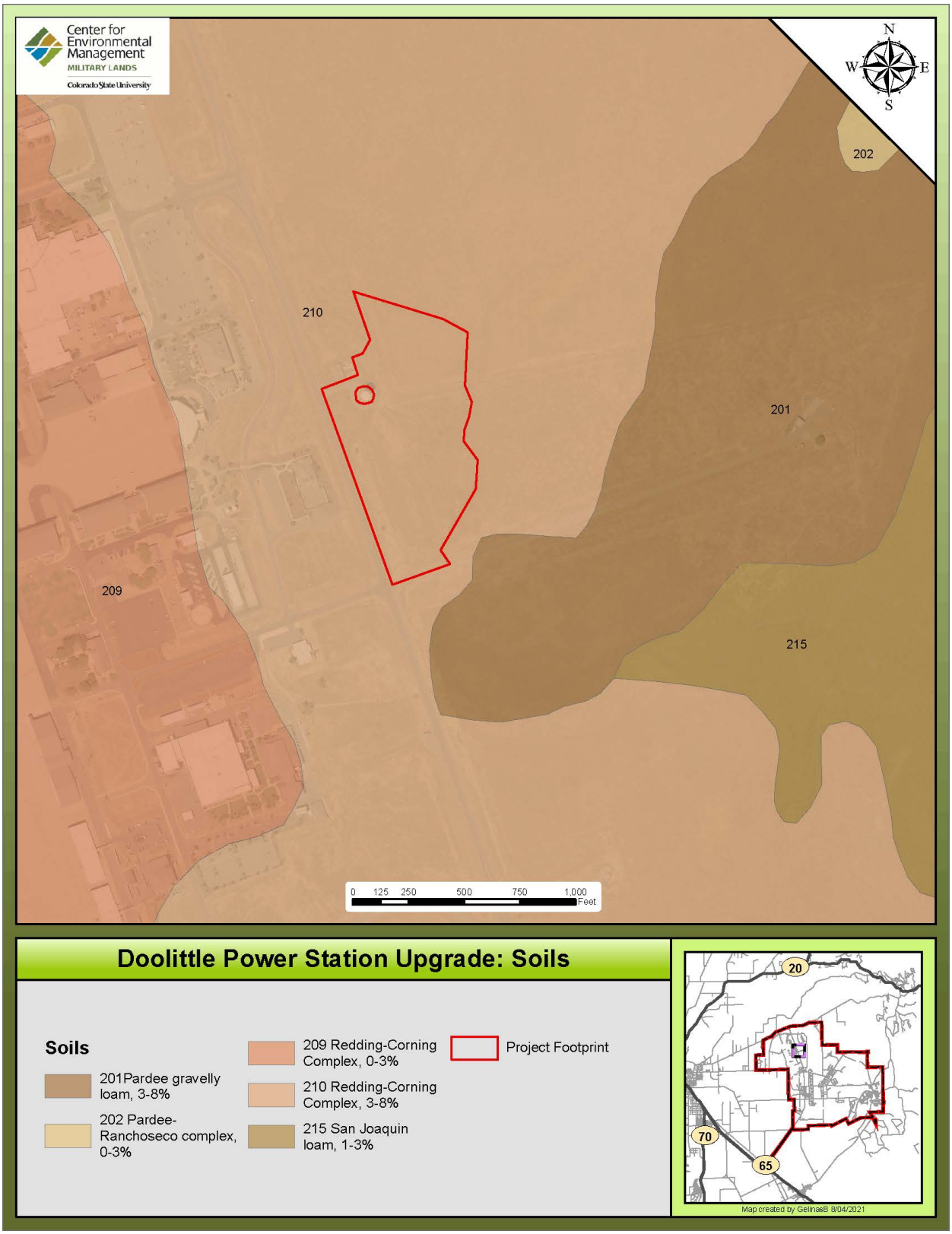

Figure 3. Site soils, Beale AFB, California.

3.4 Wetland Features

From 2006-2009, Light Detection and Ranging (LiDAR) was used to develop a preliminary jurisdictional delineation of wetland and water features at Beale AFB (USACE 2012) in order to develop a Base-wide inventory of aquatic features and Waters of the United States. In 2019 and 2020, the LiDAR data for the Proposed Action Area and a 250 ft buffer were ground-truthed and verified (e.g., examined for hydric soils, vegetation, and evidence of ponding as well as contours, slope, and depth) by Beale AFB biologists. This was done to confirm the location and classification of wetland features within the Proposed Action Area and buffer. Field observations verified the presence of all wetland features originally identified by LiDAR (Figure 2). One feature was originally delineated as a swale, but upon inspection was found to be a man-made ditch (Di1524) that is the drainage for the underground pipe extending from the water tower.

There are 21 wetlands delineated within the Proposed Action Area and 250 ft buffer. They consist of nine vernal pools, seven seasonal swales, and five manmade ditches. Most of the swales and vernal pools are hydrologically connected and make up a small portion of a vernal pool/seasonal swale complex that drains the eastern portion of the Base. All of the wetland features within 250 ft of the Proposed Action Area are lower in elevation than the Action Area. All wetlands within 250 ft of the Proposed Action Area are listed in Table 1.

Table 1: Wetland Features within 250 ft of Proposed Action Area, Beale AFB, California

ID	Wetland Type	Distance to Proposed Action (ft)	Acreage	Potential Branchiopod Habitat	Description
Vernal Pools					
11119	Vernal Pool (VP)	60.2	0.004	Y	Small, isolated vernal pool northwest of the Action Area. Lower than Action Area, but not hydrologically connected to other wetland features.
2991	Vernal Pool (VP)	174	0.02	Y	Moderate-sized vernal pool that is part of the vernal pool/swale complex that lies east of the Action Area.
2996	Vernal Pool (VP)	158.1	0.04	Y	Moderate-sized vernal pool that is part of the vernal pool/swale complex that lies east of the Action Area.
2994	Vernal Pool (VP)	249.6	0.02	Y	Moderate-sized vernal pool that is part of the vernal pool/swale complex that lies east of the Action Area.
8636	Vernal Pool (VP)	55.2	0.03	Y	Moderate-sized vernal pool that is part of the vernal pool/swale complex that lies east of the Action Area.
2891	Vernal Pool (VP)	51.9	0.28	Y	Large vernal pool that is part of the vernal pool/swale complex that lies southeast of the Action Area.
8395	Vernal Pool (VP)	80.4	0.02	Y	Small vernal pool that is part of the vernal pool/swale complex southeast of the Action Area.
8394	Vernal Pool (VP)	96.7	0.02	Y	Small vernal pool that is part of the vernal pool/swale complex southeast of the Action Area.

ID	Wetland Type	Distance to Proposed Action (ft)	Acreage	Potential Branchiopod Habitat	Description
2840	Vernal Pool (VP)	194.5	0.04	Y	Moderate-sized vernal pool that is part of the vernal pool/swale complex that lies south of the Action Area.
Swales					
3806	Swale (Sw)	51	0.92	Y	Large swale that acts as the main drainage for the vernal pool/swale complex east of the Action Area.
3859	Swale (Sw)	228.3	0.007	Y	Small swale that is part of the vernal pool/swale complex east of the Action Area.
3750	Swale (Sw)	57.3	0.02	Y	Small swale that is part of the vernal pool/swale complex east of the Action Area.
3705	Swale (Sw)	114.6	0.008	Y	Small swale that is a part of the vernal pool/swale complex southeast of the Action Area.
3690	Swale (Sw)	47.7	0.02	Y	Small swale that is a part of the vernal pool/swale complex south of the Action Area across Grumman Avenue.
3674	Swale (Sw)	110.6	0.007	Y	Small swale that is a part of the vernal pool/swale complex south of the Action Area across Grumman Avenue.
3653	Swale (Sw)	120.6	0.07	Y	Small swale that is a part of the vernal pool/swale complex south of the Action Area across Grumman Avenue.
Ditches					
1524	Ditch (Di)	0	0.06	N	Man-made ditch within Action Area through which outflow pipe would be extended. Some facultative wetland plants present, but no obligate species, mixed with upland vegetation. Slope of ditch such that potential for ponding is limited.
833	Ditch (Di)	129.1	0.08	N	Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
596	Ditch (Di)	11.1	0.4	N	Located across Grumman Avenue. from the Project Area. Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
594	Ditch (Di)	53.1	0.07	N	Located across Doolittle Dr. from Action Area. Shallow drainage ditch on the edge of road, west of the Action Area. Does not support vernal pool hydrology or flora.
591	Ditch (Di)	90	0.04	N	Located across Doolittle Dr. from Action Area. Shallow drainage ditch on the edge of road, west of the Action Area. Does not support vernal pool hydrology or flora

Green = wetland feature outside of 50-ft buffer; yellow = non-ESA habitat within 50-ft buffer; orange = ESA habitat within 50-ft buffer.

3.5 Threatened and Endangered Species/Habitat Considered

A preliminary list of species for consideration was compiled from official species lists maintained by USFWS, available in its Information for Planning and Consultation (IPaC) tool, and data from special status species surveys of Beale AFB. Federally-listed species with the potential to occur in or near the Action Area were evaluated to determine if the Proposed Action could affect the species or their habitat (Table 2).

Table 2: ESA-Listed Species with Potential to Occur at Beale AFB, California

Common Name	Scientific Name	Federal Status	State Status	Known to Occur at Beale AFB	Potential to Occur within Action Area
Crustaceans					
Vernal pool fairy shrimp	*Branchinecta lynchi*	Threatened	None	Yes	Yes
Conservancy fairy shrimp	*Branchinecta conservatio*	Endangered	None	No	No
Vernal pool tadpole shrimp	*Lepidurus packardi*	Endangered	None	Yes	Yes
Insects					
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	Threatened	None	Yes	No
Monarch Butterfly	*Danaus plexippus*	Candidate	None	Yes	Yes
Amphibians					
California red-legged frog	*Rana draytonii*	Threatened	None	No	No
Birds					
Western yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Endangered	Unknown	No
Source: California Department of Fish and Wildlife (CDFW) 2019, USFWS IPaC Tool Dec 2, 2020 (USFWS 2020a).					

Of the species listed in Table 2, only vernal pool fairy shrimp, vernal pool tadpole shrimp, and monarch butterfly have the potential to be present in or near the Proposed Action Area and therefore, are considered in this consultation.

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest known vernal pool fairy shrimp occurrence is approximately 980 ft from the Action Area. However, potential habitat exits within 250 ft of the Proposed Action (Beale AFB 2019).

Vernal pool tadpole shrimp (*Lepidurus packardi*): The nearest vernal pool tadpole shrimp occurrence is approximately 1,280 ft from the Action Area. However, potential habitat exits within 250 ft of the Proposed Action (Beale AFB 2019).

Monarch butterfly (*Danaus plexippus*): There are no records of monarchs within 250 ft of the project area. Additionally, there is no suitable breeding habitat (milkweed plant patches) or roosting sites (trees) for monarchs within 250 ft of the project area. The nearest known patch of milkweed plants is more than one mile from the Proposed Action Area (CEMML 2020a). There

are however, potential nectaring sources on the site in the form off annual wildflowers and native perennial bulbs (e.g., *Dichlostema* & *Brodiaea* spp.).

The remaining four species were excluded from further consideration for the following reasons:

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphis*): No elderberry exists within the Action Area. The nearest blue elderberry shrub (*Sambucus nigra* subsp. *caerulea*) occurrence is located more than one mile from the Action Area (CEMML 2020b). Therefore, this species was eliminated from further consideration.

Conservancy fairy shrimp (*Branchinecta conservatio*): This species is not likely to occur on Beale AFB, and there are no known occurrences of the species within 10 miles of the Base (Beale AFB 2020). Therefore, this species was eliminated from further consideration.

California red-legged frog (*Rana draytonii*): An amphibian assessment of Beale AFB, did not find any California red-legged frogs (CRLF) on Base and they are believed to be historically present but extirpated (EDAW 2006, URS Corporation 2008b). Although CRLF habitat may have been present on Beale AFB in the past, poor habitat conditions and the presence of predators including the American bullfrog (*Lithobates catesbeianus)* do not allow populations to persist. The nearest recorded observation of CRLF was 32.5 miles from Beale AFB (CDFW 2019). Therefore, this species was eliminated from further consideration.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*): The western distinct population segment of the yellow-billed cuckoo was evaluated due to its relatively recent ESA listing as threatened. A habitat assessment for yellow-billed cuckoo was conducted on Beale AFB in 2018 (Halterman 2019) and additional surveys were performed in the summer of 2020 (CEMML 2020c). The Dry Creek area was determined to be poor to marginal habitat for yellow-billed cuckoo and not likely to support a breeding population of the species. If cuckoos occasionally occur in this area, it is likely only as a part of a migration. Additionally, the closest suitable habitat is greater than two miles from the Proposed Action Area. Therefore, this species was eliminated from further consideration.

4.0 ANALYSIS OF PROPOSED ACTIONS

The following subsections provide a summary of the anticipated direct and indirect effects to listed species that may occur as a result of the Proposed Action. Potential direct and indirect effects on the listed species from the Proposed Action are evaluated based on USFWS definitions; direct effects are all those effects that occur as an immediate result of the Proposed Action; and indirect effects, as defined by the federal ESA, are those effects that are caused by or will result from the Proposed Action and are later in time, but are still reasonably certain to occur [50 Code of Federal Regulations (CFR) §402.02].

4.1 Effects of the Proposed Action

The Proposed Action would have the potential to indirectly affect listed vernal pool species within the vicinity of the Proposed Action Area via runoff and soil erosion. There would also be the potential for indirect impacts to western monarchs from the temporary loss of nectar sources from the construction of the new solar array. However, the erosion control seed mix prescribed for this

project, includes native flowers that can serve as nectar sources, which has the potential to improve the site for pollinators.

The Proposed Action Area has been planned and situated so that it is at least 50 ft from any potential vernal pool shrimp habitat. The direct effects were considered to be equivalent to the disturbance footprint of the Proposed Action Area. The project would occur adjacent to an existing swale/vernal pool complex that drains to the south along the eastern boundary of the project area, however, no potential listed species habitat lies within the Action Area itself. Therefore, there would be no direct effects to special status species or their habitat.

Due to the proposed location and nature of the project (upland annual grassland with minimal changes to hydrology), and with the implementation of the CMs provided in Section 2.2, it is anticipated that any indirect effects to potential vernal pool shrimp habitat would be temporary and discountable. All wetlands within 50 ft of the Proposed Action Area would be protected through implementation of the CMs outlined in this consultation document to eliminate potential adverse effects to listed species. Justification for no impacts to wetland features within 50 ft and 250 ft of the Proposed Action Area is in Tables 3 and 4 respectively. No vernal pools or other wetlands would be filled or otherwise directly adversely affected by the Proposed Action.

Table 3: Justification for ESA determination of impacts to potential vernal pool shrimp habitat within 50 ft of the Proposed Action Area, Beale AFB, California

ID	Elevation Relative to Action Area	Hydrologically Connected?	Acres	Distance (ft)	Justification for no Effect
Di1524	Lower	No	0.055	0	**Not suitable habitat**. Man-made ditch within Action Area through which outflow pipe would be extended. Some facultative wetland plants present, but no obligate species, mixed with upland vegetation. Slope of ditch such that potential for ponding is limited.
Di596	Lower	Yes	0.419	11.1	**Not suitable habitat**. Located across Grumman Avenue from the Project Area. Shallow drainage ditch that does not support vernal pool hydrology or flora. Silt fencing or other erosion control will be installed along the edge of this feature. Dust will be controlled on-site which will keep it from settling in wetlands. If soil or other materials are being tracked onto Grumman Avenue temporary entrance plates will be installed.
Sw3690	Lower	Yes	0.025	47.7	This is **suitable habitat**, but it is almost 50 ft from the Action Area across Grumman Avenue. Dust will be controlled on-site which will keep it from settling in wetlands. If soil or other materials are being tracked onto Grumman Avenue temporary entrance plates will be installed.

Yellow = non-ESA habitat within 50-ft buffer; Orange = ESA habitat within 50-ft buffer.

Table 4: Justification for ESA determination of impacts to potential vernal pool shrimp habitat within 250 ft of the Proposed Action Area, Beale AFB, California

Wetland Type	Number of Features	Elevation Relative to Action Area			Hydrologically Connected?		Acres	Distance (ft)
		Lower	Equal	Higher	Yes	No		
Ditch	5	5	0	0	2	3	0.65	0 – 129
Swale	7	7	0	0	7	0	1.052	48 – 228
Vernal Pool	9	9	0	0	8	1	0.474	52 – 250
Total	21	21	0	0	17	4	2.176	0 – 250
Justification for Not Likely to Adversely Affect								
A USFWS-approved biologist will monitor all construction activities in and adjacent to known or potential federally-listed vernal pool shrimp habitat. Work will be conducted during the dry season, limiting the potential for sediment to be washed into or transported to hydrologically connected potential vernal pool shrimp habitat. All wetland features within 50 ft of the Action Area will be flagged or fenced, and protected by physical erosion control measures. This will also protect any hydrologically connected features greater than 50 ft from the Action Area. Implementation of CMs will prevent adverse effects to potential vernal pool shrimp habitat. A USFWS-approved biologist will designate and flag access routes to areas adjacent to potential vernal pool shrimp habitat to the greatest extent possible, if access routes must cross potential vernal pool shrimp habitat, matting will be used for protection.								

4.2 Future Effects

Future indirect impacts could come from routine maintenance to clean and repair the solar arrays, as well as mowing/weed eating. Proper timing of this maintenance – during the summer months, when vernal pools are dry and most grassland plants are dormant – should minimize any damaging effects to nectar sources. Ideally, the site would primarily be maintained using weed-whacking, with limited mowing. As long as it does not increase the fire risk, this would allow workers to trim vegetation to 7-8 inches high, which would allow some low-growing late-season blooms to remain.

There is the potential for long-term indirect effects to vernal pool species from increased runoff and erosion from the site. However, with the implementation of CMs specifying native plants be used as ground cover, the long-term erosion and runoff risk would be minimal. If emergency maintenance or repair is required during the wet season, access routes and CMs will be determined by the NRM or qualified biologist.

4.3 Cumulative Effects

There are two other projects expected to occur within the vicinity of the Proposed Action that may also affect listed species. The BWIP and the Repair 9th Physiological Support Squadron Building Storm Drainage System Project (Building #1029 Storm Drainage Project). The BWIP is a large project that includes the installation of an electrical transmission line with portions aboveground and underground, and a substation on Beale AFB to allow access to power from an existing Western Area Power Administration transmission line located west of the Base. The new line ends at a manhole in Doolittle Drive adjacent to the Proposed Action Area. The BWIP has already received an opinion from the USFWS (USFWS 2020b) and the portion of the project adjacent to the Proposed Action Area is not expected to adversely impact listed species. The Building #1029

Storm Drainage project involves the repair of a culvert headwall and storm drainage basin downstream of the wetland complex adjacent to the Proposed Action Area, to prevent catastrophic flooding of nearby structures. This project will be in a future consultation with the USFWS due to its close proximity to listed species habitat.

The cumulative impacts of all three projects within the vicinity of the Proposed Action are not likely to increase adverse impacts to listed species, as the combined effects of all three would not significantly change the hydrology of the existing system, or significantly impact any listed species found on Beale AFB, and thus cumulative impacts can be discounted.

4.4 Conclusion

The Proposed Action has the potential to have temporary indirect effects on vernal pool crustacean habitat as a result of construction activities. The Proposed Action also has the potential for temporary impacts to nectar sources that could be used by monarch butterflies. Impacts resulting from the Proposed Action would be temporary or discountable, and the Action Area would be restored in accordance with the CMs listed in Section 2.2. The assessment of the potential effects of the Proposed Action on federally-listed species and their habitats takes into account the implementation of these measures. Additionally, future maintenance would have minimal potential to impact listed species and would conform to all applicable CMs. Based on this determination, no compensatory mitigation should be required.

5.0 SUMMARY OF DETERMINATIONS

The information and analysis presented in this document formed the basis for the finding that the Proposed Action warrants the following effects determination for species listed under the ESA with the potential to occur within or near the Proposed Action Area. Beale AFB has determined that the Proposed Action may affect, but is not likely to adversely affect the federally-listed species that occur or have the potential to occur within the Proposed Action Area. Table 5 summarizes the determinations of the analysis of the species with potential to occur in the Action Area and included in this informal consultation.

Table 5: Summary of Endangered Species Act determinations at the 2 Megawatt Photo Voltaic Solar Array and Microgrid Action Area, Beale AFB, California

Species	Endangered Species Act Determination
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	May Affect, Not Likely to Adversely Affect
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	May Affect, Not Likely to Adversely Affect
Monarch Butterfly (*Danaus plexxipus*)	May Affect, Not Likely to Adversely Affect

6.0 REFERENCES

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U.S. FISH AND WILDLIFE SERVICE INFORMAL CONSULTATION

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In Reply Refer to:
2022-0044492

July 12, 2022

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Subject: Informal Consultation on the Doolittle Power Station Repair/Upgrade and Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage at Beale Air Force, Yuba County, California

Dear Julia Riley:

This letter is in response to the Beale Air Force Base's (Beale AFB) May 19, 2022, email request that the U.S. Fish and Wildlife Service (Service) concur with the determination that the Doolittle Power Station Repair/Upgrade and Installation of 2 Megawatt (MW) Photo Voltaic Solar Array and Microgrid with Battery Storage (proposed project) at Beale AFB in Yuba County, California, may affect, but is not likely to adversely affect, the federally listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp), and the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardi*) (tadpole shrimp). The Service received your email request on May 19, 2022. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 et seq.) (Act) and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

In considering your request, we based our evaluation of your findings on the following: (1) the May 18, 2022, letter initiating informal consultation; (2) the May 2022, *Doolittle Power Station Repair/Upgrade and Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage at Beale AFB Biological Assessment, California,* received May 19, 2022; (3) site visit on June 6, 2022; (5) telephone and email correspondence between the Service and Beale AFB from May 19 to July 1, 2022; and (5) additional information available to the Service.

Project Description

The proposed project is located on Beale AFB in Yuba County, about 40 miles north of Sacramento. The purpose of the proposed project is to improve electrical infrastructure and provide electrical energy resiliency to critical Global Hawk Campus systems at Beale AFB. The proposed project includes upgrades to the Doolittle Substation, the installation of a new 9.5-

acre photo voltaic (PV) solar array, and a microgrid with battery energy storage system (BESS). The proposed project consists of the following:

- Demolish existing Doolittle Substation;
- Construct new switch yard with cinderblock perimeter wall;
- Connect underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines;
- Install a 9.5-acre 2 MW PV solar array field with chain–link security perimeter fencing;
- Install a prefabricated structure with heating, ventilation, and air conditioning (HVAC) to house the new microgrid and BESS;
- Pave two new parking spaces;
- Install an aggregate driveway on Grumman Avenue and improve and widen pavemens of the existing driveway on Doolittle Drive and around the water tank;
- Alter an existing man-made drainage ditch with a water tower drainpipe valve to prevent site erosion from tank draining activities; and
- Install underground conduit.

Demolition and Site Preparation

The existing Doolittle Substation will be completely demolished before construction of the new switchyard is initiated, since it will be located on the existing substation footprint. All components shall be disposed of, or recycled off-base. The 'B' and 'C' street substations shall provide electrical power to maintain the mission on the flightline during construction of the new Doolittle Power Station.

The existing five-strand barbed wire cattle fence will be relocated to make room for the installation of the PV solar panels located east and south of the Doolittle Substation. Preparation for the installation of the PV solar array will include grading portions of the area to lay a suitable aggregate (i.e., gravel, crushed granite, etc.) and pavements (i.e., concrete, asphalt) in three locations. This will provide access for maintenance vehicles to the new structures. All borrow soil will be tested for contaminants and approved by 9 CES/CEI prior to use. All excess materials will be tested for contaminants and disposed at an approved location. The contractor will submit material certification for approval prior to placement. Water from the site drains through the culverts under Grumman Avenue, then flows through culverts under Doolittle Drive.

Construction

Preparation of the area will include grading the portions around the designated solar panel rows and portions of the new switchyard to provide passageways for maintenance and emergency vehicles to pass, excavating for panel foundations, and trenching for utility lines throughout the site.

Creating site access will include a paved ingress/egress on Doolittle Drive (widening of the existing driveway) and creating an aggregate ingress/egress on Grumman Avenue. A 30-foot wide gate will be installed at each access location. Two new paved parking spaces will be

included for utility vehicles near the existing water tower. A new 6-ft chain-link security fence will be installed around the perimeter of the proposed site.

The solar panels of the PV array system will be installed at an angle facing southward to maximize sun exposure and potential power generation. The solar panel rows will be separated to ensure utility vehicles can access the panel assemblies during installation and maintenance. In addition to space between solar panel rows, there will be space around their perimeter to allow for vehicle access. These access areas/routes, although drivable during the dry season, will be managed with native low-growing vegetation to prevent surface erosion. Blanket mulch will be used to help restore vegetation and to protect from erosion resulting from drips off of panels. No gravel or herbicide will be used beneath the solar panels during site preparation or future site maintenance. Because the center rows and perimeter will remain vegetated, there will be very little new impervious surface created by the proposed project.

The new Doolittle Switchyard will be built within the footprint of the existing substation and extend eastward. The new switchyard will include new transformers, switch gears, and a prefabricated structure to house the microgrid and BESS. A concrete pad will be built inside the switchyard for the prefabricated structure and transformers. The prefabricated structure with HVAC will house the Smart Microgrid, BESS, and electrical distribution switchgear. A 6-foot high cinder block wall with raccoon exclusion on top will be built around the perimeter of the new switchyard. The new switchyard will have trenched underground conduits and power cables interconnected to the PV array, the incoming power supply lines, and outgoing power lines to the Global Hawk Campus.

A new aggregate apron will serve as an entrance south of the solar array along Grumman Avenue Concrete pads will be constructed where PV inverters and transformers are installed. Underground conduit and cabling will be installed 30 to 36 inches deep to interconnect each panel row, inverters, transformers, and the switchgear. Revegetation of disturbed areas will consist of regionally native plants in a Beale AFB approved native seed mix.

The design will ensure that excess storm water runoff resulting from construction will not adversely affect surrounding areas. The storm drainage system could include, but will not be limited to, inlets, pipes, culverts, earthen swales, and splash blocks.

Staging Area

The staging area and laydown for the proposed project will have erosion control measures installed (e.g., wattles, silt fence) to prevent impacts to nearby wetlands.

Access Routes

The proposed project will be accessed via the driveway off of Doolittle Dr., along Doolittle Dr., and the new entrance off of Grumman Avenue.

Maintenance

Maintenance associated with the proposed project will consist of cleaning the solar arrays and mowing/weed eating the PV field at least once a year to ensure vegetation does not cover solar panels and to reduce fire hazards. Other than the access points, no gravel or herbicide will be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field.

Conservation Measures

Beale AFB and its contractors will implement the following measures to reduce the potential for adverse effects to the fairy shrimp, the tadpole shrimp, their habitat. For the purposes of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge and experience with fairy shrimp and tadpole shrimp and vernal pools.

General Conservation Measures

1. **Pre-project Surveys:** A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the qualified biologist will contact the Beale AFB Natural Resources Manager (NRM) who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.

2. **Biological Monitor:** A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these conservation measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the qualified biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.

3. **Conservation Measure Review for Project Managers (at project kickoff):** Beale NRM will provide Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel during pre-construction kickoff meeting. Contractor project managers will acknowledge review and understanding of Avoidance and Minimization Measures by signature.

4. **Environmental Awareness Training**: Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the 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

maintained at Beale AFB and will be accessible to the appropriate resource agencies.

5. **Limited Operations Period:** No work will be conducted between November 1 and May 1, unless specifically approved by the Beale AFB NRM and the Service. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.

6. **Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas:** Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.

7. **Location of Work and Staging Areas:** All materials, vehicle parking and staging areas are designated by the Beale Environmental Office and are located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

8. **Minimization of Off-Road Access Routes:** Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.

9. **Additional Access Routes:** If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist to minimize impacts to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.

10. **Trenches and Holes:** No trenches or holes greater than 6 inches deep will be left open at the end of the day and may be covered with plywood or cone markers; trenched areas and holes will be compacted and restored to normal grade.

11. **Revegetation:** All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.

12. **Suitable Material:** No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.

13. **Speed Limits:** All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.

14. **Pets/Firearms:** No pets or nonmilitary firearms will be allowed in the proposed project area during proposed project implementation.

15. **Garbage Removal:** During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. 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. **Green Waste Disposal:** All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.

17. **Invasive Species:** A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the Qualified Biologist and may be rejected if the Qualified Biologist determines that it is has not been adequately cleaned.

18. **Invasive Species Monitoring:** The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.

19. **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 will occur on a paved surface or at least 100 feet from any wetland feature/ drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

20. **Equipment Condition:** Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left on site, or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.

21. **Spill Plan:** A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance with applicable local, state, and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.

22. **Fire Prevention and Suppression Plan:** A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the Beale AFB NRM for Wildland Fire Chief approval.

23. **Erosion Control Systems:** Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic netting and will be "certified weed free" to prevent the spread of invasive species.

24. **Dust Control:** All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools.

25. **Excess Soil Protection:** Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.

26. **Use of Excavated Soil on Base:** If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.

27. **Disposal of Excavated Soil:** All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.

28. **Report Kills/Injuries:** Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within 3 business days and will provide written notification via email of the incident within 5 business days.

29. **Trenching Controls:** In unimproved areas, the top 6 to 12 inches of the trench or hole will be backfilled with topsoil from the trench.

Wetland and Vernal Pool Branchiopod Conservation Measures

30. **Wetland Erosion Control:** All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

31. **Wetland Feature Protection:** Intrusive work adjacent to branchiopod habitat shall have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.

32. **Wetland Pre-Project Vegetation Clearing:** If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment Mechanical clearing of vegetation is prohibited during the wet season.

Habitat and Occurrences with the Action Area

The habitat in and around the action area is dominated by grassland species that include mostly naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*). Interspersed with the grassland are a few ephemeral wetlands, which may provide habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. The dominant wetland plant taxa at Beale AFB are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castillega campestris*), and ornate downingia (*Downingia ornatissima*).

There are no known occurrences of vernal pool fairy shrimp or vernal pool tadpole shrimp within 250 feet of the action area. The nearest fairy shrimp occurrence is approximately 980 feet from the action area and the nearest tadpoles shrimp occurrence is 1,280 feet from the action area. There is 0.025 acre of potential fairy shrimp and tadpole shrimp habitat within 50 feet of the proposed action area.

Conclusion

The Service concurs with your determination that the proposed project, as described, may affect, but is not likely to adversely affect the fairy shrimp and tadpole shrimp because: (1) avoidance of sensitive areas; and (2) implementation of the proposed conservation measures, such as environmental awareness training, pre-construction surveys, biological monitoring, and erosion controls. The proposed project is situated at least 50 feet from any potential vernal pools and along with the proposed conservation measures effects from sedimentation from construction activity will be prevented.

This concludes the Service's review of the proposed project. No further coordination with the Service under the Act is necessary at this time. Please note, however, this letter does not authorize take of listed species. As provided in 50 CFR §402.14, initiation of formal consultation is required where there is discretionary federal involvement or control over the action (or is authorized by law) and if: (1) new information reveals the effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this review; (2) 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 review; or (3) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding the proposed at Doolittle Power Station Repair/Upgrade and Installation of 2 Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Beale Air Force Base, please contact Cathy Johnson at cathy_s_johnson@fws.gov or myself at Jennifer_hobbs@fws.gov or (916) 414-6541.

Sincerely,

Jennifer Hobbs
Supervisor, Military and Waterway Planning Division

ec:
Tamara Gallentine, Natural & Cultural Resources Manager, Beale Air Force Base

APPENDIX B NOTICES OF AVAILABILITY

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Notice of Availability

Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the Doolittle Power Station Repair & Upgrade Project at Beale Air Force Base, Yuba County, California

The U.S. Air Force (USAF), in conjunction with Air Combat Command, and the 9th Reconnaissance Wing, Beale Air Force Base (AFB) has prepared a Draft EA for the proposed Doolittle Power Station Repair & Upgrade project which would replace the existing Doolittle Substation and would install a new smart microgrid, battery energy storage system, and a 9.2 acre photovoltaic solar array to provide electrical energy resiliency to critical systems at Beale AFB.. The EA assesses known, potential, and reasonably foreseeable environment consequences related to these activities. The analysis considers potential effects of the Proposed Action and the No Action Alternative on air quality; airspace management & use; land use & agriculture; soil resources; water resources; biological resources; hazardous materials, hazardous wastes, & non-hazardous wastes; utilities & infrastructure; and cultural & tribal cultural resources and provides environmental protection measures to avoid or reduce adverse environmental impacts. The Air Force has submitted an informal consultation to the U.S. Fish & Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act for the project. Beale AFB made the determination that the proposed action "may affect, but is not likely to adversely affect" federally-listed species. USFWS concurrence of this determination has not yet been received at the time of this notice publication, but is anticipated to arrive following the public comment period.

The results, as found in the EA, show that the Proposed Action would not have a significant adverse impact on the environment after employment of avoidance and mitigation measures, indicating that a Finding of No Significant Impact (FONSI) would be appropriate.

Wetlands are nearby the analysis area of the Proposed Action. Agencies with expertise in hydrology or species dependent on these systems were coordinated or consulted with including CA State Water Board, US Fish and Wildlife Service, and the US Army Corps of Engineers.

Copies of the Draft EA and the proposed FONSI are available for review by calling Mr. Chantz Risse, at (530) 634-9568 or emailing to chantz.risse.1@us.af.mil. Beale AFB Public Affairs can also be contacted at (530) 634-8887 or via email at 9rw.pa@us.af.mil. Public comments on the Draft EA must be received no later than Thursday, July 28, 2022 and directed to Mr. Chantz Risse, 6425 B Street, Bldg 25390, Beale Air Force Base, CA 95903.

APPENDIX C AIR QUALITY CONFORMITY ANALYSIS

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AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: BEALE AFB
State: California
County(s): Yuba
Regulatory Area(s): Yuba City-Marysville, CA

b. Action Title: Doolittle Power Station Repair and Upgrade

c. Project Number/s (if applicable):

d. Projected Action Start Date: 5 / 2022

e. Action Description:

Proposed Action
The Proposed Action involves demolition of the existing Doolittle Substation equipment, and the new construction of a high voltage switch yard, a new Doolittle Substation, a new control room (20 foot wide x 30 foot long x 10 foot tall) , a new two (2) megawatt (MW) photo voltaic (PV) solar array with inverters and a four (4) MW smart microgrid with battery energy storage system (BESS) engineered to store and distribute renewable energy through the primary circuitry to the Global Hawk Campus (GHC) and Mission Control Station (MCS) Pad.

The proposed PV solar array farm would be constructed in approximately 10 acres, northeast, east and south of the Doolittle Power Station, south of the Water Tower and west of the wetlands area. The Solar Panel rows would be separated for vehicle access for installation and maintenance.. These access areas/routes, although drivable, would be managed with native low growing vegetation to prevent surface erosion. Preparation for the installation of the PV solar array would include some grading, trench excavation, and to pave approximately 900 square feet area with suitable aggregate to provide access for maintenance vehicles and building structures. An existing man-made drainage ditch with an underground pipe originating from the water tank is used for emergency use only if the water tower experiences damage. The drainpipe would be extended approximately twenty-five feet (~25 feet) with a flapper and diverter for reduced water flow to drain through culverts under Grumman Avenue towards the storm water drainage ditch and routed through culverts under Doolittle Drive. Preparation of the acreage would include covering the extended pipe to level and grade the portions around the designated Solar Panel rows and the Doolittle Power Station to provide passageways for maintenance and emergency vehicles to pass and a hardscape apron to be an entrance south of the Solar Farm, hardscape pads to install PV Inverters and transformers in specific locations and hardscape driveways to enter the PV array and enter the Doolittle Power Station, Underground conduit and cabling would be installed to interconnect each panel row, inverters, transformers, and the BESS switchgear. The proposed new Doolittle Power Station with the switch yard, smart microgrid, BESS, and electrical distribution switchgear would be constructed with concrete pads to mount the electrical distribution equipment with a 6-foot high CMU wall circumventing the Doolittle Power Station, strategically near the PV Array System. The electrical power storage, switchgear, control room and distribution panels would be installed in the Doolittle Power Station with underground conduits and power cables interconnected to the Solar Farm installation, and Global Hawk Campus.

No-ACTION Alternatives
The CEQ regulations require consideration of the No-Action Alternative for all Proposed Actions. The No-Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared. Under the No-Action Alternative, the Doolittle Power Station and associated

structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing Global Hawk Mission at Beale AFB.

Alternatives Eliminated From Further Analysis
Two alternatives were considered and eliminated from further consideration because one or more of the selection criteria were not met. These alternatives are described below.

Additional 5MVA Distribution Substation:
An additional 5MVA distribution substation was considered to make up for power deficiencies. This would be less expensive than replacing the existing substation which would meet the power demand required along with an extended service life. However, this approach does not update the existing substation and requires re-routing existing and adding feeders. This results in added maintenance for the 9 CE Electrical Shop, not a feasible alternative.

Western Area Power Administration (WAPA) Substation:
The WAPA Substation would service the assets by replacing the power of the existing (E) Doolittle Substation (F1149) with low maintenance costs overtime. However, the total replacement incurs the installation of (N) feeders for every asset along with the complexity of environmental constraints would result in being cost prohibitive and not meeting the current schedule for the additional power required in the near future.

f. Point of Contact:

Name: Susan Stewart
Title: CIV GS-12 / Air Quality Program Manager
Organization: 9 CES / CEIE
Email: susan.stewart.7@us.af.mil
Phone Number: 530-634-2844

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.291	100	No
NOx	1.756	100	No
CO	1.747		
SOx	0.005	100	No
PM 10	14.050		
PM 2.5	0.072	100	No
Pb	0.000		
NH3	0.001	100	No
CO2e	475.9		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

2023

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.056	100	No
NOx	0.313	100	No
CO	0.385		
SOx	0.001	100	No
PM 10	0.475		
PM 2.5	0.012	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	100.9		

2024 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000	100	No
PM 10	0.000		
PM 2.5	0.000	100	No
Pb	0.000		
NH3	0.000	100	No
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Susan Stewart, CIV GS-12 / Air Quality Program Manager

1 APRIL 2022
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: BEALE AFB
State: California
County(s): Yuba
Regulatory Area(s): Yuba City-Marysville, CA

- Action Title: Doolittle Power Station Repair and Upgrade

- Project Number/s (if applicable):

- Projected Action Start Date: 5 / 2022

- Action Purpose and Need:

The purpose of the proposed action is: 1) to ensure electric power supporting all facilities on the Flight Line, the Munitions Storage, and Global Hawk Campus at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the Global Hawk Campus in the event of an electrical outage. Currently, the hangars & buildings on the flight line, munitions storage, and Global Hawk Campus at Beale AFB are at risk of power failure resulting in periods of non-operation in the event of a power failure subsequently affecting the missions with not having reliable power & backup sources.

- Action Description:

Proposed Action
The Proposed Action involves demolition of the existing Doolittle Substation equipment, and the new construction of a high voltage switch yard, a new Doolittle Substation, a new control room (20 foot wide x 30 foot long x 10 foot tall) , a new two (2) megawatt (MW) photo voltaic (PV) solar array with inverters and a four (4) MW smart microgrid with battery energy storage system (BESS) engineered to store and distribute renewable energy through the primary circuitry to the Global Hawk Campus (GHC) and Mission Control Station (MCS) Pad.

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Alternatives Eliminated From Further Analysis
Two alternatives were considered and eliminated from further consideration because one or more of the selection criteria were not met. These alternatives are described below.

Additional 5MVA Distribution Substation:
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- Point of Contact

Name: Susan Stewart
Title: CIV GS-12 / Air Quality Program Manager
Organization: 9 CES / CEIE
Email: susan.stewart.7@us.af.mil
Phone Number: 530-634-2844

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	2 MW Photo Voltaic (PV) Solar Array System Construction Activities
3.	Construction / Demolition	Doolittle Substation, West Switch Yard, Micogrid/BESS Switch Yard Construction Activities

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Yuba
Regulatory Area(s): Yuba City-Marysville, CA

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Title: 2 MW Photo Voltaic (PV) Solar Array System Construction Activities

- Activity Description:
The Proposed Action the new construction of a two (2) megawatt (MW) photo voltaic (PV) solar array system. Construction activities would include site grading, trenching, and paving using suitable loose aggregate (non-asphalt).

- Activity Start Date
Start Month: 5
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 1
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.291209
SO_x	0.004892
NO_x	1.756151
CO	1.746601
PM 10	14.050014

Pollutant	Total Emissions (TONs)
PM 2.5	0.071696
Pb	0.000000
NH_3	0.000548
CO_2e	475.9

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 2
Start Year: 2022

- Phase Duration
Number of Month: 3
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 466560
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 17

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8

Scrapers Composite	2	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD}$ = (20 * ACRE * WD) / 2000

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 3
Number of Days: 0

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1800
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 17

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92

Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Yuba
Regulatory Area(s): Yuba City-Marysville, CA

- Activity Title: Doolittle Substation, West Switch Yard, Micogrid/BESS Switch Yard Construction Activities

- Activity Description:
The Proposed Action involves demolition of the existing Doolittle Substation equipment, and the new construction of a high voltage switch yard, a new Doolittle Substation, a new control room (20 feet wide x 30 feet long x 10 feet tall) , and a four (4) MW smart microgrid with battery energy storage system (BESS). Construction activities include site grading, trenching, and building a new prefabricated control room.

- Activity Start Date
Start Month: 5
Start Month: 2023

- Activity End Date
Indefinite: False
End Month: 10
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.055957

Pollutant	Total Emissions (TONs)
PM 2.5	0.012173

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SO_x	0.001052
NO_x	0.312559
CO	0.384613
PM 10	0.474971

Pb	0.000000
NH_3	0.000175
CO_2e	100.9

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 2
Start Year: 2023

- Phase Duration
Number of Month: 2
Number of Days: 0

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 28500
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.2 Trenching/Excavating Phase

3.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 7
Start Quarter: 2
Start Year: 2023

- Phase Duration
Number of Month: 2
Number of Days: 0

3.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 18000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 132

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8

Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

3.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.3 Building Construction Phase

3.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 8
Start Quarter: 1

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Start Year: 2023

- Phase Duration
Number of Month: 1
Number of Days: 0

3.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 600
Height of Building (ft): 10
Number of Units: N/A

- Building Construction Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips
Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

3.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Forklifts Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454

Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.114	000.003	000.084	000.992	000.047	000.020		000.023	00298.845
LDGT	000.288	000.004	000.178	001.871	000.048	000.021		000.024	00379.038
HDGV	000.600	000.011	001.339	008.875	000.183	000.078		000.045	01128.468
LDDV	000.026	000.003	000.125	000.281	000.060	000.032		000.008	00271.718
LDDT	000.094	000.003	000.533	000.594	000.112	000.082		000.008	00364.857
HDDV	000.194	000.014	004.796	001.133	000.211	000.117		000.028	01514.699
MC	004.452	000.002	001.252	023.791	000.019	000.009		000.054	00187.891

3.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft^3 to trips (0.42 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft^3 to trips (0.38 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

APPENDIX D AVOIDANCE AND MINIMIZATION MEASURES

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Appendix D – Avoidance and Minimization Measures

The Environmental Office has identified which avoidance and minimization measures (AMMs) to be implemented as part of the Doolittle Power Station Repair & Upgrade project. Assessment of the potential impacts of the Proposed Action is based on the implementation of these measures.

Table 1. List of Appendix D Acronyms and Abbreviations

Acronyms/Abbreviations	Definition
AFB	Air Force Base
AHERA	Asbestos Hazard Emergency Response Act
AMMs	Avoidance Minimization Measures
ATC	Authority to Construct
BMPs	Best Management Practices
BOLs	Bill of Ladings
CAA	Clean Air Act
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
C&D	Construction and Demolition
CRHR	California Register of Historical Resources
CRM	Cultural Resources Manager
CVC	California Vehicle Code
CVRWQCB	Central Valley Regional Water Quality Control Board
DLA	Defense Logistics Agency
DOD	Department of Defense
EPA	U.S. Environmental Protection Agency
FRAQMD	Feather River Air Quality Management District
HUC	Hydraulic Unit Code
HVAC	Heating, Ventilation and Air Conditioning
HW	Hazardous Waste
IAW	In accordance with
LBP	Lead-based Paint
LDRs	Land Disposal Restrictions
M&OP	Management and Operating Plan
NAHC	Native American Heritage Commission
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NRM	Natural Resources Manager
ODS	Ozone Depleting Substance
OSHA	Occupational Safety and Health Administration
PERP	Portable Equipment Registration Program

Acronyms/Abbreviations	Definition
SHPO	State Historic Preservation Officer
SWPPP	Storm Water Pollution Prevention Plan
USFWS	United States Fish and Wildlife Service
UW	Universal Waste

Table 2: Avoidance and Minimization Measures

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-1: Fugitive Emissions The Contractor shall comply with Feather River Air Quality Management District (FRAQMD) "Standard Mitigation Measures for All Projects" and "Fugitive Dust Control Mitigation Measures" during construction. Reference FRAQMD Rule 3.16 Fugitive Dust Emissions.	**Activity:** Comply with FRAQMD Rule 3.16 Fugitive Dust Emissions **Timing:** During construction. **Frequency:** As required.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-2: Stationary Air Emission Sources Any air emission source (boiler, heater, generator, petroleum storage tank, refrigeration unit, parts washer, etc.) installed or modified in this project must meet FRAQMD requirements at https://ww3.arb.ca.gov/drdb/fr/cur.htm . The Contractor must work with the Base Air Quality Program Manager (530-634-2844) to obtain an Authority to Construct (ATC) permit from FRAQMD prior to installation of new equipment or modification/removal of existing equipment. The Contractor is responsible for payment of the ATC permit and inspection fee. Notify 9 CES/CEIER Air Quality Program Manager (530-634-2844 or susan.stewart.7@us.af.mil) before installing, modifying, relocating, or removing emission source equipment.	**Activity:** Obtain *Authority to Construct* permit from FRAQMD. **Timing:** When installing new equipment or modification/ removal of existing equipment. **Frequency:** Once per emission source.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date	FRAQMD	
AQ-3: Portable Diesel Equipment Any portable diesel internal combustion engines brought on to Beale AFB require registration documentation from California Air Resources Board (CARB) Portable Equipment Registration Program (PERP). PERP Registration numbers	**Activity:** Provide PERP registration numbers to 9 CES/CEIER Air Quality Manager for any portable	**Project Contractor** Initials	**BEALE AFB** Initials	CARB & possibly FRAQMD	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
must be provided to 9 CES/CEIER Air Quality Manager (530-634-2844) within three (3) business days of arriving on Beale AFB. The portable equipment will be subject to inspection by FRAQMD.	diesel internal combustion engines brought on to Beale AFB. **Timing:** Within 3 days after bringing a portable diesel internal combustion engine onto Beale AFB. **Frequency:** Once per engine.	_____ Date	_____ Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-4: Manufacturer's Equipment Specifications and Emissions Data The Contractor will furnish copies of the manufacturer's equipment specifications and emissions data for fuel burning equipment (such as boilers, heaters, and generators) and any other documents submitted to FRAQMD to the Base Air Quality Program Manager to document meeting FRAQMD Air Permit requirements.	**Activity:** Furnish copies of manufacturer's equipment specifications and emission data to the Base Air Quality Program Manager. **Timing:** During construction. **Frequency:** As required.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-5: Contractor Vehicles California Vehicle Code (CVC), Section 4000, requires that any vehicle based in California or primarily used on California highways shall be registered in California. Vehicles must be smog tested and registered in CA within 30 calendar days of arriving in the state. Contractors and their employees are advised that failure to have their vehicles smog tested and registered in CA within 30 calendar days of arrival may result in enforcement action by local/state authorities.	**Activity:** Comply with *California Vehicle Code (CVC), Section* *4000.* **Timing:** Within 30 days of arriving in the state. **Frequency:** Per each contractor vehicle.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-6: Idle Policy In accordance with Title 13 California Code of Regulations (CCR), Section 2485, all diesel-fueled commercial vehicles operating in the State of California with a gross vehicular weight of greater than 10,000 lbs. must not be idled for greater than five (5) minutes at any location.	**Activity:** Comply with *Title 13 California Code of Regulations (CCR), Section 2485*. **Timing:** Anytime on Beale AFB. **Frequency:** Every 5 minutes of idling	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
AQ-7: Refrigerant Compliance and Ozone Depleting Substances a. Any relocation, modification, or removal of existing building Heating, Ventilation and Air Conditioning (HVAC) system will require the Ozone Depleting Substance (ODS) (refrigerant) to be recovered and	**Activity:** Comply with refrigerant compliance and ozone depleting	**Project Contractor** Initials	**BEALE AFB** Initials		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
tracked for the amount removed and replaced. The recovery equipment will also need to have an U.S. Environmental Protection Agency (EPA) Refrigerant Recovery or Recycling Device Acquisition Certification readily available on site. b. Regulations governing disposal of Ozone Depleting Substances (ODS), are covered in the "Defense Materiel Disposition Manual" (Department of Defense (DOD) 4160.21 -M), "Storage and Handling of Liquefied and Gaseous Compressed Gasses and Their Full and Empty Cylinders" (DLAI 4145.25 / AFJMAN 23-227(I)) and the Department of Defense "Ozone Depleting Substances Turn-In Procedures". All Class I ODSs, Halons and R-22 must be recovered and retained by the Air Force. These refrigerants may not be transferred/sold/given to anyone outside of the DOD, regardless of where/how the material is stored (storage cylinders, within equipment, or any other configuration). Covered materials that	substances regulations. **Timing:** During construction. **Frequency:** As required.	Date	Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
which are not necessary to support installation activities must be returned to the Defense Logistics Agency (DLA) ODS Reserve. c. Regardless of material or disposition, all ODSs and their "non-ODS" alternatives must be maintained in accordance with all Clean Air Act (CAA) regulations; including but not limited to, record keeping, storage, labeling and any other applicable requirements. These requirements can be found in Section 608 of the CAA. Records pertaining to recovery of disposition of these materials must be developed and maintained to ensure compliance with CAA record keeping requirements. d. Refrigerant commodities, which are not required to be returned to the DLA ODS Reserve, must also be maintained IAW with DOD and California requirements, however these materials are not required to be transferred to the DLA ODS Reserve. Care should be taken to ensure					

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
proper record keeping as well as compliance with all Federal Acquisition Regulations. e. Properly certified civilian, military or contract personnel must perform maintenance and Recovery activities. f. The Refrigerant Management Module within the AF Air Program Information Management System (APIMS) will be utilized for tracking refrigerant management activities, including HVAC maintenance, equipment disposal and other situations covered by the California.					
HAZ-1: Hazardous Wastes Must be identified and disposed of properly in accordance with local, state and federal regulations. Contractors or generating organizations must be aware of, account for and immediately notify 9 CES/CEIER regarding all processes that may create Hazardous Waste (HW.) Sampling of all wastes (Hazardous or non-Hazardous) will be coordinated with 9 CES/CEIER. Profiles and waste acceptance	**Activity:** Hazardous wastes must be identified and disposed of properly in accordance with	**Project Contractor** _____ Initials _____ Date	**BEALE AFB** _____ Initials _____ Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
documents (to include SDSs and/or sampling results) will be reviewed and signed by 9 CES/CEIER prior to shipping HW from Beale AFB. HW and Universal Waste (UW) shipments and all shipping documents (manifests, bill of ladings (BOLs), Land Disposal Restrictions (LDRs), etc.) will be inspected and signed by 9 CES/CEIER before leaving base. The contractor or generating organization will complete manifests with the following information: EPA ID# CA7570024508; Beale 24-hr. emergency phone number 530-634-8675; generator mailing address- 9 CES/CEIER, 6425 B St., Beale AFB, CA, 95903; POC- 530-634-2644 Mr. Eric Maresh. Alternate POC phone is 530-634-4452.	local, state, and federal regulations. **Timing:** During construction. **Frequency:** As required.				
HAZ-2: Non-Hazardous Wastes Non-HWs requiring shipment from Beale AFB (examples include treated wood waste, liquid wastes, and excess soil) must be identified and disposed of properly in accordance with local, state and federal regulations. The contractor or generating organization must be aware of, account for and notify 9 CES/CEIER regarding all processes that may create non-hazardous wastes. Sampling of all non-HWs will be	**Activity:** Non-hazardous wastes to be shipped must be identified and disposed of properly in accordance with	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
coordinated with 9 CES/CEIER. Profiles and waste acceptance documents (to include SDSs and/or sampling results) will be reviewed and signed by 9 CES/CEIER prior to shipping non-HWs from Beale AFB. Non-HW shipments and all shipping documents (non-HW manifests, BOL's, etc.) will be inspected and signed by 9 CES/CEIER before leaving base. The contractor or generating organization will complete shipping documents with the following information: generator mailing address- 9 CES/CEIE, 6425 B St., Beale AFB, CA, 95903; POC 530-634-2644 Mr. Eric Maresh. Alternate POC phone 530-634-4452.	local, state and federal regulations **Timing:** During construction. **Frequency:** As required.				

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HAZ-3: Recycled Materials A Construction and Demolition (C&D) Debris Diversion and Disposal Report must be submitted monthly for the project. For more information, and a copy of the form, contact the 9 CES/CEIER Qualified Recycling Program Manager, Mr. Tony Rojas at 530-634-4452. Alternate POC phone number is 530-634-2644.	**Activity:** Submit C&D Debris Diversion and Disposal Report to the 9 CES/CEIER Qualified Recycling Program Manager. **Timing:** During construction. **Frequency:** Monthly.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
HAZ-4: Asbestos and Lead Based Paint Project work could disturb hazardous materials such as asbestos or lead-based paint, if they are present in the work area. The contract must include the requirement for a hazardous material survey, performed by a state certified lead/asbestos and hazardous materials consultant,	**Activity:** Contract a hazardous material survey, contact Contracting Officer if unexpected asbestos or LBP is	**Project Contractor** Initials	**BEALE AFB** Initials	California Certified Asbestos Consultant and CARB	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
as a contractor responsibility. This will ensure that hazardous materials, if present, will be identified and properly managed by the contractor. In the event that unexpected asbestos is found or previously non-friable asbestos material becomes crumbled, pulverized, or reduced to powder, the Contractor shall immediately stop work. Contractor/ Shop personnel shall provide event details to Beale AFB by immediately notifying the Contracting Officer, 9 CES/CEN Project Manager and 9 CES/CEIER Air Quality Program Manager. The Contractor shall consult with a California Certified Asbestos Consultant to complete applicable testing. If renovation, abatement, removal activities and/or other work practices/processes renders any amount of previously Non-friable asbestos containing materials friable, the Contractor/Shop shall stop work and immediately submit National Emission Standards for Hazardous Air Pollutants (NESHAP) notifications via certified mail to both EPA and California Air Resources Board. A copy of the notification will be submitted to the contracting officer and to the 9 CES/CEIER Air	found, and follow requirements for testing. **Timing:** During construction. **Frequency:** As required.	_____ Date	_____ Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
Quality Program Manager. For more information, contact 9 CES/CEIER at 530-634-2844.					
HAZ-5: Health & Safety Work Plan The Contractor must submit a Health and Safety Plan and Abatement Work Plan that includes worker health and safety practices for the abatement activities. The Health and Safety Plan must include valid certificates for each worker that will be involved in the abatement showing they have completed required Asbestos Hazard Emergency Response Act (AHERA) and Occupational Safety and Health Administration (OSHA) training requirements. A copy must be provided to the 9 CES/CEIER Toxics Program Manager.	**Activity:** Submit a Health and Safety Plan and Abatement Work Plan. **Timing:** Prior to construction. **Frequency:** Once prior to construction.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HAZ-6: Beale Asbestos M&OP/LBP Plan Compliance The contractor must comply with Beale AFB Asbestos Management and Operating Plan, Lead-Based Paint Management and Operations Plan, and applicable AHERA, USEPA, NESHAP and OSHA laws and regulations when working in areas with asbestos or lead hazards. Contact 9 CES/CEIER at 530-634-2844 for additional information if needed.	**Activity:** Comply with Beale AFB Asbestos/ LBP M&OP Plans, and applicable AHERA, USEPA, NESHAP, and OSHA laws and regulations. **Timing:** During construction. **Frequency:** As required.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HAZ-7: Warning Signs Required The contractor must post warning signs at the entrance of asbestos or lead abatement areas warning of the hazard.	**Activity:** Post asbestos or lead abatement warning signs. **Timing:** Prior to construction. **Frequency:** Once per entrance prior to construction.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HAZ-8: Demolition Written Notification Written notification of demolition or renovation operations is required. The notification is required for demolition even if there is no asbestos present. Notify USEPA and California Air Resources Board via certified mail at least 10 calendar days prior to any demolition. Notify the Feather River Air Quality Management District (FRAQMD) five business days prior to any demolition. Only complete notification forms are acceptable, and incomplete notification can result in enforcement action. The Contractor must comply with the NESHAP regulation, and provide copies of all notification forms to 9 CES/CEIER prior to sending them to the regulatory agencies.	**Activity:** Write notification of demolition or renovation operations; notify USEPA and CARB; comply with NESHAP regulation. **Timing:** Prior to any demolition; at least 10 calendar days for USEPA & CARB and 5 business days for FRAQMD. **Frequency:** Once per demo site.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date	CARB, USEPA, and FRAQMD.	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
HAZ-9: Asbestos Abatement Notification Beale AFB requires notification at least ten (10) business days prior to any asbestos abatement project. The Beale AFB notification must go to the 9 CES/CEIER Toxic Substances Program Manager (530-634-2844) and 9 MDOS/SGOAB (Bio Environmental). Notify EPA and California Air Resources Board via certified mail at least ten (10) business days prior to any project that removes or disturbs regulated asbestos containing materials in excess of specified quantities. Notify the Feather River Air Quality Management District (FRAQMD) at least ten (10) working days prior to any project that removes or disturbs regulated asbestos containing materials in excess of specified quantities. Notify Cal-OSHA at least 24 hours prior to removing regulated asbestos containing materials. The Contractor must complete all required notifications.	**Activity:** Notify applicable agencies prior to any asbestos abatement project. **Timing:** At least 24 hours before removing regulated asbestos containing materials for OSHA; 10 business days for all other agencies. **Frequency:** Before any asbestos abatement project.	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
WR-1: Storm Water Pollution Prevention Plan If more than 1 acre of land is disturbed during the project, a project-specific storm water pollution prevention plan (SWPPP) is required prior to construction. The Contractor is responsible for preparing the SWPPP. Contact 9 CES/CEIER at 530-634-2559 for more information.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
WR-2: Clean Water Act Sections 401 and 404 If wetlands or waters of the US are impacted by project activities of any type, a Clean Water Act permit (Sections 401 and 404) may be required. Contractor is to provide completed draft application forms. Contact 9 CES/CEIER at 530-634-2559 for more information.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
CR-1: Cultural Resources Awareness Training All construction personnel will receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources prior to starting work. Training will be provided at the start of the construction project and prior to any new worker's arrival on the project. This training will 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. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all mitigation measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies. It is the construction contractor's responsibility to seek training from the Beale AFB Environmental Office for personnel as they join the project.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
CR-2: Monitor for Archeological Resources The environmental contractor will provide an archaeological monitor to witness ground-disturbing activities. The monitor will meet the Secretary of the Interior Standards for an Archaeological Technician, with a minimum of a Bachelor's degree or comparable experience. In the event of an inadvertent discovery, the monitor will (in conjunction with the tribal monitor) notify the Beale AFB Cultural Resources Manager (CRM) and Mitigation Measure 8 will be instituted.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
CR-3: Tribal Monitor for Tribal Cultural Resources Tribal partners upon request may provide a tribal monitor to witness project activities. The monitor will be provided by the requesting tribe. The Beale AFB CRM will notify the interested tribal partners two weeks in advance of the project initiating earthwork. In the event of an inadvertent discovery of a suspected Tribal Cultural Resource, the tribal monitor is invited to inform the archaeological monitor to alert the Beale AFB CRM and Mitigation Measure CR-4 will be instituted. If the Tribal monitor is not present and the archaeological monitor suspects the presence of a Tribal Cultural Resource, the archaeological monitor will alert the Beale AFB CRM and Mitigation Measure CR-4 will be instituted.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
CR-4: Inadvertent Discovery of Archeological and Tribal Cultural Resources In the event that human remains, artifacts, or other archaeological materials, or suspected Tribal Cultural Resources are discovered during the course of any action or activity associated with the project, all ground-disturbing activity at the point of discovery, and within a 100 ft exclusionary area, must be halted, and the Beale	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials	**BEALE AFB** Initials		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AFB CRM notified. Any inadvertent discovery will be initially assumed potentially eligible for the NRHP (if applicable CRHR), and afforded appropriate protection until it is determined to be otherwise. The Beale AFB CRM will notify the Beale AFB Wing Commander, the CVRWQCB (where applicable), the SHPO, and the consulting tribal partners, if discovery is a suspected Tribal Cultural Resource. In the case of a suspected Tribal Cultural Resource, a tribal representative of the consulting tribal partners is invited to determine if the find is a Tribal Cultural Resource and make recommendations regarding treatment. Treatment measures determined to be necessary and feasible by the Beale AFB CRM will be implemented. If the find proves to be human remains, additional legal responsibilities are instituted and the appropriate county coroner, Beale AFB Wing Commander, and the CVRWQCB (where applicable) will be notified by the Beale AFB CRM (Beale AFB 2020: SOP 7.4). If the county coroner identifies the remains as Native American, they are required to notify the NAHC within 24 hours in accordance with California Health & Safety Code 7050.5(c). The NAHC will then identify the most likely		Date	Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
descendants. If the find is located outside of Beale AFB, then the landowner will be notified by the Beale AFB CRM and the steps outlined in CEQA Guidelines Section 15064.5(e) will be followed.					
BIO-1: Electrical Supporting Facilities If new electrical power poles are installed or existing power poles are modified in this project, the new or modified poles must comply with raptor protection requirements outlined in "Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006", Avian Power Line Interaction Committee.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** _____ Initials _____ Date	**BEALE AFB** _____ Initials _____ Date		
BIO-2: Landscaping New landscaping will be planted with species identified in the Beale AFB Landscape Design Plant List, followed by at least two years of maintenance (watering and weeding). Mitigation plantings will be coordinated with the NRM. a. All landscaped areas disturbed by construction shall be restored to their	**Activity:** **Timing:** **Frequency:**	**Project Contractor** _____ Initials _____	**BEALE AFB** _____ Initials _____		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
original condition or better, e.g., sod, trees, shrubs and mulch replaced along with any irrigation systems. When the soil is re-vegetated, the contractor/shop will remove the erosion control systems. All disturbed areas will be backfilled and returned to normal grade. For more information on landscaping please contact the NRM. b. Plants propagated for landscaping use will need to be inspected and ensured to be free of invasive species (e.g., Argentine ants, *Linepithema humile*).		Date	Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-3: Nesting Birds Contact 9CES/CEIEC at least 30 calendar days in advance to arrange the pre-construction site survey for nesting birds, protected under the Migratory Bird Treaty Act, present within the construction area. Birds, nests, and eggs are protected by law from 15 February - 31 August (nesting season). Contact CEIE at least 30 days in advance to arrange the pre-construction site survey. A qualified biologist must perform a pre-construction site survey at least 30 calendar days before construction to determine whether any protected species are present on or near the site. If protected birds are present and nesting on or near the site, construction may be temporarily postponed until the nesting season is over.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-4: Preconstruction Surveys A qualified biologist will conduct preconstruction surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the preconstruction surveys, the qualified	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials	**BEALE AFB** Initials		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
biologist will contact the natural resource manager (NRM) who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work. At least 15 working 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 Service that the biologist(s) is qualified to conduct the work.		Date	Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-5: Biological Monitor A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these conservation measures required to protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist will have the authority to stop any aspect of the Proposed Action that could result in unauthorized take of a protected species. If the biological monitor exercises this authority, the monitor will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-6: Environmental Awareness Training Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the Proposed Project. The training program will include an	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials	**BEALE AFB** Initials		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the 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 maintained at Beale AFB and will be accessible to the appropriate resource agencies.		Date	Date		
BIO-7: Invasive Species A Service-approved biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the project area will be removed using non-chemical methods.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-8: Erosion Control All wetlands/ drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Soil erosion and sediment controls will be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date. a. Site-specific effective erosion control measures (i.e., hay bales, silt fencing, blanket mulch) will be implemented as directed by the Beale AFB Environmental Office and in place at all times during construction. Proper erosion and sediment control measures will be installed. The contractor will install and maintain erosion control systems such as gravel/sand bags, silt fence, straw bale barriers, erosion control/stabilization blankets, straw wattles, etc. as needed to protect drainage ditches, storm drains,	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
seasonal wetlands and water bodies from sedimentation resulting from construction activity. Erosion control devices will not contain plastic netting. Do not start construction until all temporary control devices are in place. The devices shall be properly installed at all locations where the likelihood of sediment input exists. These devices shall be in place during and after construction activities for the purposes of minimizing fine sediment and sediment/water slurry input that would be detained as sediment-laden water on site. b. If continued erosion is likely to occur after construction is complete, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided. Erosion control devices such as coir rolls or erosion control blankets will not contain plastic netting of a mesh size that would entrain reptiles (especially snakes) and amphibians. c. Sediment shall be removed from sediment controls once it has reached one-third of					

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
the exposed height of the control. Whenever straw bales are used, they shall be sterile and weed free, staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps. d. The contractor/applicant to the Program is required to inspect, maintain or repair all erosion control devices prior to and after any storm event, at 24-hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures have been completed. e. Construction boundaries within the buffer will be designated with fencing to ensure no equipment and/or construction workers access those protected areas. All erosion control materials will be weed free to prevent the spread of invasive species.					

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-9: Limited Operations Period No work will be conducted within 100-ft of streams or wetland features between 1 November and 1 May, unless specifically approved by the NRM and the Service; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosions controls.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-10: Upland Buffers Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced, or preserved Waters of the U.S. Except in unusual circumstances, vegetated buffers will be at least 50-ft in width.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-11: Minimization of Off-Road Access Routes Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-12: Location of Work and Staging Areas All materials, vehicle parking and staging areas will be designated by the Beale Environmental Office and located at least 50 feet away from drainages and other wetlands. Storage of all construction material/ debris will be kept to the designated storage/ staging area.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-13: Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-14: Additional Access Routes If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist, to minimize impacts to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-15: Report Kills/Injuries Any worker that inadvertently kills or injures an animal, especially federally protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform the Beale AFB Natural Resources Manager. If the killed or injured animal is a federally protected species the Natural Resource Manager will then verbally notify the Service within 3 working days and will provide written notification of the incident within 5 working days.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-16: Animal Injuries/Rehabilitation Injured animals will be transported by a Beale biologist to a USFWS permitted rehabilitation facility. The Beale AFB Natural Resources Manager will coordinate and communicate with the rehabilitation facility until the animal's release. The contractor will, through coordination with the Beale AFB Natural Resources Manager, financially support the non-profit rehabilitation facility for veterinarian and care expenses.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-17: 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 will occur on a paved surface or at least 100-ft from any wetland feature, drainage, sensitive habitat or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.					
BIO-18: Spill Plan A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for Environmental Spill Team approval.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-19: Garbage Removal During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. 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.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-20: Disposal of Excavated Soil All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate, prior to disposal of excavated soil.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-21: 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. Off- pavement access routes can only be used if the soil is dry. Access routes will be established in upland areas, when feasible. Where it is necessary for access routes to go through a wetland feature, the work will be completed in the dry season and matting will be placed to avoid any potential effects to species and/or sensitive habitats. Off-road access routes will not be used during the Limited Operations Period (Nov 1 -May 1). All materials, vehicle parking, access routes, and staging areas will be designated by Beale AFB Environmental Office and located at least 50 feet away from drainages and other wetlands. Storage of all construction material/debris will be kept to the designated storage/staging area.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-22: Speed Limits All vehicle operators will follow the posted speed limit on paved roads and a 15 MPH speed limit on unpaved roads.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-23: Pets/Firearms No pets or non-military firearms will be allowed in the action area during Proposed Action implementation.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-24: Pesticides If USAF-approved pesticides (herbicides, insecticides, etc.) are used at the project site, they may only be applied by a DoD or California certified/licensed applicator. Beale AFB will ensure that label restrictions, and all regulations mandated by the Beale AFB IPMP, the Air Force Pest Management Program, a General NPDES Permit for Residual Aquatic Pesticide Discharges, DoD, U.S. Environmental Protection Agency and the California Department of Food and Agriculture are observed (USFWS 2006c and USFWS 2007c). No pesticides shall be used within 50-ft of a wetland unless approved by the Service and NRM.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** _____ Initials _____ Date	**BEALE AFB** _____ Initials _____ Date		
BIO-25: Trenches and Holes No trenches or holes will be left open at the end of the day; trenched areas and holes will be compacted and restored to normal grade.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** _____ Initials _____ Date	**BEALE AFB** _____ Initials _____ Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-26: Trenching Controls In unimproved areas, the top 6 to 12 inches of the trench or hole should normally be backfilled with topsoil from the trench.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-27: Temporary Fills Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate with a Base-approved plant palette.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-28: Revegetation All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control materials will be "certified weed free." Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-29: Proper Structure Maintenance Any authorized structure or fill will be properly maintained, including maintenance to ensure public safety.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-30: Suitable Material No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-31: Fire Suppression A Fire Prevention and Suppression Plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the NRM for Wildland Fire Chief approval.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-32: Excess Soil Protection Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarps and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water run-off and wind erosion. All remaining fill material will be removed in entirety according to disposal requirements and the affected areas will be revegetated.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-33: Dust Control All road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-34: Surface Flow Protection Access roads must be constructed so that the length of the road minimizes any adverse effects on wetlands and must be restored as closely as possible to preconstruction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads).	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-35: Invasive Species Equipment Movement All equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the qualified biologist and may be rejected if the qualified biologist determines that it is has not been adequately cleaned.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-36: Green Waste Disposal All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-37: Prescribed Fire Hand-lines No hand-lines will be cut within 50 feet of wetlands during a prescribed fire conducted near or within potential fairy shrimp and tadpole shrimp habitat. Only black lining (back burning a perimeter) and wet lining (mowing and then wetting an area to prevent combustion) will be used to create fire lines within 50 feet of wetlands.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-38: Pre-Project Survey: Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-39: Milkweed Awareness Training: As part of the Environmental Awareness Training, all individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a qualified biologist on the identification of milkweed plants and a description of both adult and larval monarchs in order to avoid milkweed and monarchs during all activities.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-40: Herbicide Use within 50 feet of Milkweed: Unoccupied actively growing milkweed will be avoided by a minimum of two feet during the application of herbicides. Herbicide application within 50 feet of a milkweed plant will be conducted with a low-pressure backpack sprayer to reduce the risk of drift.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-41: Herbicide Use near Occupied Monarch Habitat: No broad-spectrum herbicide application will take place within 100 feet of occupied monarch habitat when wind speeds exceed 10 mph, or temperatures exceed 85°F to minimize potential for drift and volatilization.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-42: Pre-emergent Herbicide Use: No persistent or pre-emergent herbicides will be used within 100 feet of milkweed or other occupied monarch habitats (e.g., roosting sites).	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-43: Milkweed Mitigation: Milkweed numbers and species will be assessed in project areas where impacts to milkweed may occur due to construction or restoration activities. a. The impacts of milkweed removal in known monarch breeding areas will be minimized by planting equivalent milkweed species at a 3:1 ratio. The impacts of milkweed removal in habitat not known to be used by monarchs will be minimized by planting milkweed at a 2:1 ratio. b. Areas within or adjacent to occupied habitat (within 250 feet of a documented monarch breeding or roosting location), lacking extensive milkweed, where successful control of invasive species has been achieved, will be prioritized for planting. c. All newly planted milkweed will be regionally native and preferably of the same species removed. Milkweed species selection and replanting location will be at the discretion of the NRM.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-44: Milkweed Buffer: A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and ground-disturbing activities to protect monarch breeding habitat.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-45: Preservation of Trees: Willows and other trees known to or with the potential to be (within occupied habitat) used as roosting sites will be avoided during construction and maintenance activities. a. Except for cut stump and wiping of target species, no herbicide application will occur during the active season of monarchs (15 March through 31 October) within 50 feet of known or potential roosting sites. b. No trimming of trees used by monarchs as roosting sites will occur during the active season (15 March through 31 October).	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-46: Reseeding/Habitat Enhancement: Projects within 250 feet to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans. Reseeding and other habitat improvements will be prioritized away from roads and will avoid areas of frequent human activity to minimize the potential for incidental take. All seed mixes must be approved by the NRM.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-47: Mowing: Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15 March through 31 October). a. If mowing must be conducted (i.e., for habitat restoration projects benefiting Monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided. b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
BIO-48: Prescribed Fire Treatment and Milkweed: No prescribed fire treatment will occur within 100 feet of habitat occupied by monarchs during the active monarch season (15 March through 31 October).	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		
BIO-49: Grazing and Milkweed: Riparian areas and drainages with known habitat used by monarchs (e.g., milkweed stands and roosting sites along Dry Creek, Hutchinson Creek) will be excluded from grazing. Heavy cattle or horse grazing in areas with low residual dry matter (below approximately 1000-1200 pounds per acre (lbs/ac)) or grazing with sheep and goats would not occur in locations known to be occupied by monarchs during the active season (15 March through 31 November) to prevent soil compaction and trampling of milkweeds.	**Activity:** **Timing:** **Frequency:**	**Project Contractor** Initials Date	**BEALE AFB** Initials Date		

APPENDIX E SECTION 106 CONSULTATIONS

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NATIVE AMERICAN CONTACT LOG FOR NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATIONS

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Ms. Glenda Nelson, Chairperson 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 530-532-1768 Fax info@enterpriserancheria.org	Maidu	Dated and sent on 01/11/21	01/25/2021, 1:45 PM, DC	02/05/2021, 2:30 PM, DC	1/20/2021, 5:05 PM, via email with mail receipt				01/20/2021, 5:05 PM, DC sent letter and map attachment via email. Addressed to Mr. Franklin. 01/25/2021, 1:45 PM, DC called and got the front desk. Front desk transferred to a voicemail. DC left voicemail. 02/05/2021, 2:30 PM, DC called and got the front desk. DC was transferred to voicemail and left a message.
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Mr. Reno Franklin, THPO 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 707-694-4783 Cell info@enterpriserancheria.org	Maidu	Dated and sent on 01/11/21	01/25/2021, 1:45 PM, DC	02/05/2021, 2:25 PM, DC	1/20/2021, 5:05 PM, via email with mail receipt				01/20/2021, 5:05 PM, DC sent letter and map attachment via email. Addressed to Mr. Franklin. 01/25/2021, 1:45 PM, DC called and got the front desk. Front desk transferred to voicemail. DC left a voicemail. 02/05/2021, 2:25 PM, DC called cell phone and left a voicemail
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Regina Cuellar, Chairperson PO Box 1340 Shingle Springs CA 95682 530-676-8010 office 530-676-8033 fax	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 1:55 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 1:55 PM, DC called office number and left a voicemail. 02/01/2021, 7:55 AM, DC received email verification with letter from Mr. Fonseca below.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Annie Jones, Vice Chairperson PO Box 1340 Shingle Springs CA 95682	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 1:55 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 1:55 PM, DC called office number above and left a voicemail. 02/01/2021, 7:55 AM, DC received email verification with letter from Mr. Fonseca below.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Mr. Daniel Fonseca, Director Language Preservation/THPO PO Box 1340 Shingle Springs CA 95682 530-698-1460 dfonseca@ssband.org	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 2:00 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 2:00 PM, DC called and left a voicemail. 02/03/2021, 7:55 AM, DC received email verification of letter receipt with attached letter stating that they are unaware of cultural resources in the area but they would like to receive updates of the project progress and any record searches that have been completed.
Berry Creek Rancheria of Maidu Indians Mr. Francis Steele, Chairperson 5 Tyme Way Oroville, CA 95966 530-534-3859 530-534-1151 Fax fsteele@berrycreekrancheria.com	Maidu	Dated and sent on 01/11/2021	01/25/2021, 2:05 PM, DC	02/05/2021, 2:35 PM, DC	01/20/2021, 11:40 AM, via email with read receipt				01/20/2021, 11:40 AM, DC sent letter and map attachment via email. 01/25/2021, 2:05 PM, DC called and left a voicemail. 02/04/2021, 10:40 AM, DC received read receipt that email sent 01/20/2021 had been deleted and not read. 02/05/2021, 2:35 PM, DC called and left a voicemail.

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Mooretown Rancheria of Maidu Indians Mr. Benjamin Clark, Chairperson #1 Alverda Drive Oroville, CA 95966 530-533-3625 office 530-533-3680 Fax frontdesk@mooretown.org	Maidu, KonKow/ Concow	Dated and sent on 01/11/21	01/25/2021, 2:10 PM, DC	02/05/2021 2:40 PM, DC	01/20/2021, 5:30 PM, via email with read receipt		Letter	01/27/2021	01/20/2021, 5:30 PM, DC sent letter and map attachment via email. 01/25/2021, 2:10 PM, DC called office and was told Mr. Clark was not available. Left a voicemail with Mr. Hatcher below. 02/05/2021, 2:40 PM, DC called and left a voicemail at office number. Letter stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found.
Mooretown Rancheria of Maidu Indians Mr. Matthew Hatcher, THPO #1 Alverda Drive Oroville, CA 95966 530-533-3625 office matthew.hatcher@mooretown.org	Maidu, KonKow/ Concow	Dated and sent on 01/11/21	01/25/2021, 2:10 PM, DC	02/05/2021 2:40 PM, DC	01/20/2021, 5:35 PM, via email with read receipt		Letter	01/27/2021	01/20/2021, 5:35 PM, DC sent letter and map attachment via email. 01/25/2021, 2:10 PM, DC called office and was told Mr. Hatcher was not available. Left a voicemail. 02/05/2021, 2:40 PM, DC called and left a voicemail at office number. Letter stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found.
United Auburn Indian Community of the Auburn Rancheria Mr. Gene Whitehouse, Chairperson 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 (530) 883-2380 Fax bguth@auburnrancheria.com	Maidu Miwok	Dated and sent on 01/11/21	01/25/2021, 2:30 PM, DC	02/05/2021, 2:15 PM, DC	01/20/2021, 6:00 PM, via email with read receipt 01/21/2021 via e-notification system	Confirmation by e-notification system, 01/21/2021, DC Confirmation by email read receipt, 01/21/2021, DC	Email, 02/01/2021, DC		01/20/2021, 5:35 PM, DC sent letter and map attachment via email. 01/21/2021, 9:15 AM, DC completed online notification system form and attached letter and map. 01/25/2021, 2:30 PM, DC called and left a voicemail. 02/05/2021, 2:15 PM, DC called and talked to the secretary. She stated Mr. Whitehouse was not in and she would relay the call to him so he could get back about the project. 02/05/21, 9:40 AM, Email received from Anna Starkey stating no known resources are located in the APE but may exist in the vicinity. Requested to be informed of any findings.
United Auburn Indian Community of the Auburn Rancheria Matthew Moore, THPO 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2320 (530) 401-6821 Cell mmoore@auburnrancheria.com	Maidu Miwok	Dated and sent on 01/11/21	01/25/2021, 2:25 PM, DC	02/05/2021, 2:10 PM, DC	01/20/2021, 6:05 PM, via email with read receipt 01/21/2021 via e-notification system	Confirmation by e-notification system, 01/21/2021, DC	Email, 02/01/2021, DC		01/20/2021, 6:05 PM, DC sent letter and map attachment via email. 01/21/2021, 9:15 AM, DC completed online notification system form and attached letter and map. 01/25/2021, 2:25 PM, DC called and was unable to leave a voicemail due to full inbox. 02/05/2021, 2:10 PM, DC called and left a voicemail at cell number. 02/05/21, 9:40 AM, Email received from Anna Starkey stating no known resources are located in the APE but may exist in the vicinity. Requested to be informed of any findings.
Konkow Valley Band of Maidu Ms. Jessica Lopez, Chairperson 2136 Meyers Street Oroville, CA 95966 530-777-8094 jessica@konkowmaidu.org	Konkow Maidu	Dated and sent on 01/11/2021			01/20/2021, 5:15 PM, via email with read receipt				01/20/2021, 5:15 PM, DC sent letter and map attachment via email.
Konkow Valley Band of Maidu Mr. Eric Josephson, NAGPRA Coordinator PO Box 938 Cottonwood, CA 96022 530-347-5022 eric@maidu.com	Konkow Maidu	Dated and sent on 01/11/21	01/25/2021, 2:40 PM, DC		01/20/2021, 5:25 PM, via email with read receipt	Confirmation by phone conversation, 01/25/2021, DC	Verbal, 01/25/2021, DC		01/20/2021, 5:25 PM, DC sent letter and map attachment via email. 01/25/2021, 2:40 PM, DC called and spoke with Mr. Josephson. He confirmed receiving the letter and attachments. He said he had questions about the digging to a depth of 3 feet in one area. DC directed him to Tamara Gallentine and he said he would give her a call about his question. No plans on sending letter back.

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Pakan'yani Maidu of Strawberry Valley Rancheria Ms. Tina Goodwin Chairperson P.O. Box 984 Marysville, CA 95901 916-501-4472 tinagoodwin@washoetanf.org	Maidu Miwok	Dated and sent on 01/11/21			01/20/2021, 6:15 PM, via email with read receipt				01/20/2021, 6:15 PM, DC sent letter and map attachment via email. 02/05/2021, 2:00 PM, DC spoke with Mr. Dinsmore below.
Pakan'yani Maidu of Strawberry Valley Rancheria Mr. Scott Dinsmore Tribal Chair Members P.O. Box 984 Marysville, CA 95901 617-417-2166 sdinsmore@strawberryvalleymaidu.org	Maidu Miwok	Dated and sent on 01/11/21	02/05/2021, 2:00 PM, DC		01/20/2021, 6:25 PM, via email with read receipt	Confirmation by email reply, 01/25/2021 DC	Verbal, 02/05/2021, DC		01/20/2021, 6:25 PM, DC sent letter and map attachment via email. 01/24/2021, 10:45 AM, DC received email from Mr. Dinsmore confirming he received email and that he would forward on to the council for review. 02/02/2021, 3:30 PM Mailed letter returned as undeliverable to Beale AFB. Entered by DC. 02/05/2021, 2:00 PM, DC talked to Mr. Dinsmore. He stated that the information had been circulated to the tribe and no comments or questions came up. He also stated that email would be fine for future project contacts. Also inquired about an updated address. He said he would get back to me.
Colfax-Todds Valley Consolidated Tribe Ms. Pamela Cubbler, Treasurer PO Box 4884 Auburn, CA 95604 pcubbler@colfaxrancheria.com	Miwok Maidu	Dated and sent on 01/11/21	01/25/2021, 3:45 PM, DC		01/20/2021, 5:00 PM, via email with read receipt	Confirmation by phone call, 01/25/2021 DC	Verbal, 01/25/2021, DC		01/20/2021, 5:00 PM, DC sent letter and map attachment via email. 01/25/2021, 3:45 PM, DC talked to Ms. Cubbler and she confirmed receipt of the letter. She said she is unaware of any cultural resources in that area, but she was waiting to hear back from a cultural person she works with. She would contact again after hearing from him.
Colfax-Todds Valley Consolidated Tribe Mr. Clyde Prout, Chairperson PO Box 4884 Auburn, CA 95604 miwokmaidu@yahoo.com	Miwok Maidu	Dated and sent on 01/29/2021			01/29/2021, 7:10 AM, via email with read receipt				01/29/2021, 7:10 AM, DC sent letter and map attachment via email. 01/29/2021, 8:45 AM, DC sent email revising error that stated Mr. Prout had received the letter by mail on 01/11/2021.
Butte Tribal Council Ren Reynolds, Chairperson 1671 Mt. Ida Rd. Oroville, CA 95966		Dated and sent on 01/11/21	01/25/2021, 3:55 PM, DC	02/05/2021, 1:55 PM, DC	1/20/2021, 4:50 PM, via email with mail receipt				01/20/2021, 4:50 PM, DC sent letter and map attachment via email. 01/25/2021, 3:55 PM, DC called and left a voicemail. 02/05/2021, 1:55 PM, DC called and left a voicemail.

DC = Derrick Cole, Jacobs Engineering Group

NATIVE AMERICAN NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION LETTERS

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Francis Steele
Chairperson
Berry Creek Rancheria
5 Tyme Way
Oroville, CA 95966

Dear Mr. Steele,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:

1. Solar PV Microgrid Project: Vicinity Map
2. Solar PV Microgrid Area of Potential Effects and Cultural Survey Area Map
3. Norton 2020, *Memorandum for Record: Cultural Resources Survey for the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project, Yuba County, California.* Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Ren Reynolds
Chairperson
Butte Tribal Council
1671 Mt. Ida Road
Oroville, CA 95966

Dear Mr. Reynolds,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:

1. Solar PV Microgrid Project: Vicinity Map
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Pamela Cubbler
Treasurer
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Ms. Cubbler,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

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If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Clyde Prout
Chairperson
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Mr. Prout,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Reno Franklin
THPO
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

Dear Mr. Franklin,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Glenda Nelson
Chairperson
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

Dear Ms. Nelson,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

Attachments:
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Jessica Lopez
Chairperson
Konkow Valley Band of Maidu
2136 Meyers Street
Oroville, CA 95966

Dear Ms. Lopez,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Eric S. Josephson
NAGPRA Coordinator
Konkow Valley Band of Maidu
PO Box 938
Cottonwood, CA 96022

Dear Mr. Josephson,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Benjamin Clark
Chairperson
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Clark,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Matthew Hatcher
THPO
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Hatcher,

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Environmental Element Chief, 9th Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Regina Cuellar
Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Cuellar,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Daniel Fonseca
Cultural Resources Director/THPO
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Mr. Fonseca,

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Annie Jones
Vice Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Jones,

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2. Solar PV Microgrid Area of Potential Effects and Cultural Survey Area Map
3. Norton 2020, *Memorandum for Record: Cultural Resources Survey for the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project, Yuba County, California.* Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Scott Dinsmore
Tribal Chair Member
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

Dear Mr. Dinsmore,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Tina Goodwin
Chairperson
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

Dear Ms. Goodwin,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Matthew Moore
THPO
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Moore,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

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acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Gene Whitehouse
Chairperson
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Whitehouse,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties,* is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

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acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

Gwendolyn E. Vergara

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer Squadron

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RESPONSE TO NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION

Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966
(530) 533-3625 Office
(530) 533-3680 Fax

January 27, 2021

Ms. Tamara Gallentine
Cultural Resource Manager
9 CES/CEIEC
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

Re: Proposed (MW Solar Photovoltaic Array) Project – Beale AFB. Yuba Co, CA.

Dear Ms. Gallentine:

Thank you for your letter dated, January 11, 2021, seeking information regarding the proposed Photovoltaic Array project in Yuba County, California. Based on the information provided, the Mooretown Rancheria is not aware of any known cultural resources on this site. However, as the project progresses, if any new information or human remains are found, we do have a process to protect such important and sacred artifacts (especially near rivers or streams).

Please contact the following individuals if tribal cultural items or Native American human remains are found:

THPO
Mooretown Rancheria
1 Alverda Drive
Oroville, CA 95966
(5300 533-3625 Office
(5300533-3680 Fax
E-mail: matthew.hatcher@mooretown.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Matthew Hatcher
Tribal Historic Preservation Officer

NORTON, WILLIAM L CTR USAF AFMC AFCEC/AFCEC/CZOW

From: GALLENTINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC
Sent: Monday, February 8, 2021 10:25 AM
To: Anna Starkey; NORTON, WILLIAM L CTR USAF AFMC AFCEC/AFCEC/CZOW
Subject: RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Hi Anna,
I know it might be a bit confusing, Derek and others are with Jacobs (contractor) who is assisting me in follow-up calls. Jacobs would have submitted the Sect 106 electronically in the new system but I should still be the point of contact. I am the only CRM at Beale so if you ever have any questions, please feel free to contact me. Bill Norton is at the regional level and he assists me but it's still a one person shop, just with contract support.
Thank you so much for responding to this Section 106 request.
Hope to talk to you soon.
Sincerely,
Tamara Gallentine
Natural & Cultural Resources Program Manager
9 CES/CEIEC
6425 B St
Beale AFB, CA 95903
Teleworking, please call/text 530-913-2975

From: Anna Starkey <astarkey@auburnrancheria.com>
Sent: Friday, February 5, 2021 2:38 PM
To: NORTON, WILLIAM L CTR USAF AFMC AFCEC/AFCEC/CZOW <william.norton.9.ctr@us.af.mil>
Cc: GALLENTINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC <tamara.gallentine.2@us.af.mil>
Subject: [Non-DoD Source] FW: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Good afternoon,
I responded earlier today, see email below, about this project and received a phone call from Derek Cole from Beall AFB asking if we had any questions. I looked over the letters and didn't see him as a contact.

Could any of you forward him the email below so he knows that it has been reviewed by UAIC?
Thank you,
Anna

From: Anna Starkey
Sent: Friday, February 5, 2021 9:40 AM
To: Hollins, Jeremy/SDO <Jeremy.Hollins@jacobs.com>
Cc: 'GALLENTINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC' <tamara.gallentine.2@us.af.mil>
Subject: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Good morning,
Thank you for the notifications for the above referenced project. We appreciate the opportunity to consult and review the project. Our records show two cultural resources recorded in proximity to the project area but

none that we are aware of that are in. If any are identified, even isolates, during the cultural study, please let us know immediately so we can discuss treatment.

Thank you,
Anna

The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. https://auburnrancheria.com/programs-services/tribal-preservation

Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department| UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com |www.auburnrancheria.com

From:	Katie Solorio
To:	GALLENTINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC
Cc:	Kara Perry
Subject:	[Non-DoD Source] Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid
Date:	Tuesday, February 2, 2021 1:05:20 PM
Attachments:	Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid.pdf

Good Afternoon,

Please see the response letter regarding the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid. For any questions regarding this letter, please contact Site Protection Manager Kara Perry, who is copied on this e-mail.
Thank you,

Katie Solorio
Administrative Assistant
Cultural Resources Department

Phone: (530) 698-1555
Fax: (530) 558-2034
Email: KSolorio@ssband.org

Shingle Springs Band of Miwok Indians | P.O. Box 1340, Shingle Springs, CA 95682

Shingle Springs Band of Miwok Indians
Shingle Springs Rancheria (Verona Tract), California

5281 Honpie Road • Placerville, CA 95667
(530) 698-1400 • shinglespringsrancheria.com

CULTURAL RESOURCES

February 1, 2021

Beale Air Force Base
Tamara Gallentine
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid

Dear Tamara Gallentine,

Thank you for your letter dated January 11, 2021 in regard to the above mentioned project. Based on the information provided, the Shingle Springs Band Of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses. This will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports. If during the progress of the project new information or human remains are found, we would like to be able to go over our process with you to protect such important and sacred artifacts (especially near rivers and streams).

If such finds are made, please contact Kara Perry, Site Protection Manager, at (530) 488-4049 or kperry@ssband.org.

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Daniel Fonseca
Tribal Historic Preservation Officer (THPO)
Most Likely Descendant (MLD)

STATE HISTORIC PRESERVATION OFFICER CORRESPONDENCE

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Armando Quintero, *Director*

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

February 12, 2021
[VIA EMAIL]

In reply refer to: USAF_2021_0114_001

Ms. Gwendolyn Vergara, Environmental Element Chief
Attention: Tamara Gallentine and William Norton
Department of the Air Force
Headquarters 9th Reconnaissance Wing (ACC)
9 CES/CEIEC, 6425 B St., Bldg. 25390
Beale Air Force Base, CA 95903-1708

Subject: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project (2 MW Solar PV Microgrid Project)

Dear Ms. Vergara:

The California State Historic Preservation Officer received the consultation submittal for the above referenced undertaking for our review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations in 36 CFR § 800. The U.S. Air Force (USAF), Beale Air Force Base requested the SHPO's concurrence: on the defined Area of Potential Effects (APE) pursuant to 36 CFR 800.4(a)(1); on efforts to identify historic properties, pursuant to 36 CFR 800.4(b); on the National Register of Historic Places (NRHP) eligibility of two potential historic properties, Doolittle Road Water Tower and Doolittle Road Electrical Substation, pursuant to 36 CFR 800.4(c)(1), and; on the determination that there are No Historic Properties Affected by the proposed undertaking, pursuant to 36 CFR § 800.4(d)(1).

Undertaking

Your letter informed us of the proposed undertaking to develop a power back-up system at Beale AFB by constructing a Photovoltaic (PV) solar array, that will occupy 9.2 acres within the APE. The PV solar array will connect to a Battery Energy Storage System (BESS). A Smart Grid will control the power from the BESS, directing the energy into the existing adjacent Doolittle Road Substation. The BESS and Smart Grid will occupy a 60 x 60 feet concrete pad enclosed with security fencing. Cable interconnecting the components will be installed at a depth of three feet. Additional fencing, maintenance access, and parking will also be included in this development.

Area of Potential Effects (APE)
Pursuant to 36 CFR § 800.4(a)(1), USAF determined the APE as a total of 17.5 acres, with a vertical depth of three feet below ground surface. All ground disturbance, staging, and laydown areas are within the defined APE.

- Pursuant to 26 CFR 800.4(a)(1), I have no comments on USAF's APE.

Identification of Historic Properties
Your submittal package included a Memorandum for Record by the Center for Environmental Management of Military Lands (CEMML), compiled by William L. Norton, MA, RPA detailing the investigation for cultural resources within the APE, dated December, 2020. The APE had been previously inspected in 2018, 2015, and 1995. A survey was performed for the current investigation using 15-meter survey transects. No archaeological sites were identified. Your consultation letter stated that USAF is consulting with tribal partners on this undertaking and will notify the SHPO of any issues or substantive comments resulting from that consultation.

Two historic structures were present and treated as cultural resources: the Doolittle Road Water Tower (pre-1964) and the Doolittle Road Electrical Substation (1966).

Eligibility for the National Register of Historic Places
USAF determined that both structures were **not eligible** for listing on the NRHP, under:

Criterion A: Neither structure is associated with an important moment in American prehistory or history, or a pattern of events that made a significant contribution to the development of a community, a state, or the nation.

Criterion B: Neither structure is associated with an individual important within a local, state, or national historic context.

Criterion C: Neither structure embodies distinctive characteristics of a type, period, or method of construction. Neither represents the work of a master, and neither possesses high artistic value.

Criterion D: Neither structure has information to contribute to our understanding of human history or prehistory.

- Pursuant to 36 CFR 800.4(b), I find that USAF has made a reasonable and good faith effort to identify historic properties within the area of potential effects.

- Pursuant to 36 CFR 800.4(c)(2), USAF has determined Doolittle Road Water Tower and Doolittle Road Electrical Substation are not eligible for the NRHP under Criteria A-D. **I concur.**

Determination of No Historic Properties Affected
USAF made a finding of No Historic Properties Affected by this undertaking, based on:

1) Present and previous cultural resources investigations that revealed no historic properties within the APE.

2) A determination that the two structures within the APE are not eligible for the NRHP.

3) Ongoing consultations with Tribal partners regarding this undertaking. USAF's consultation letter states that any substantive comments or issues from tribes will be forwarded to the SHPO, and the consultation will be reopened if necessary.

Pursuant to 36 CFR 800.4(d)(1) USAF has made a finding of No Historic Properties Affected. **I do not object**.

If you have questions, please contact Susan Negrete, State Historian I, with the Local Government and Environmental Compliance Unit at (916) 445-7042 or by email at Susan.Negrete@parks.ca.gov.

Note that we are sending this letter in electronic format. Please confirm receipt of this letter. If you would like a hard copy mailed to you, respond to this email to request a hard copy be mailed.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

cc: Tamara Gallentine, tamara.gallentine.2@us.af.mil
William Norton, william.norton.9.ctr@us.af.mil