

ENVIRONMENTAL ASSESSMENT DISTRIBUTED COMMON GROUND SYSTEM (DCGS) OPERATIONS FACILITY

JULY 2014



BEALE AIR FORCE BASE
CALIFORNIA



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**FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND
FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) FOR THE
NEW DISTRIBUTED COMMON GROUND SYSTEM (DCGS) OPERATIONS FACILITY
AT BEALE AIR FORCE BASE, CALIFORNIA**

Purpose and Need

The attached environmental assessment (EA) analyzes the potential for impacts to the environment as a result of the construction and operation of a new Distributed Common Ground System (DCGS) Operation Facility at Beale Air Force Base (AFB), California. Beale AFB's existing DCGS facility's operations capabilities are inhibited due to the size of the facility. Adequate space is required for the expanded DCGS mission supporting the Secretary of Defense directive for continued growth of unmanned aircraft systems and associated intelligence processing, exploitation, and dissemination. The mission growth pertaining to Beale AFB requires an adequate DCGS ground platform (facilities and infrastructure) to enable expanded operation of the Global Intelligence, Surveillance, and Reconnaissance (ISR) weapon system.

Description of Proposed Action, ISR Complex, and No Action Alternatives

The Proposed Action, the ISR Complex Alternative (Alternative 1), and the No-Action Alternative were considered. The Proposed Action would involve the demolition of an existing tech pad and associated parking lot and the construction and operation of a new 85,000 square foot (SF) DCGS Operations Facility, associated parking lot, and support facilities including sidewalks, emergency generators, and landscaping on Beale AFB. Alternative 1 would involve construction of a 105,000 SF consolidated Operations Center that includes space for the DCGS Operations mission within the same construction footprint as described under the Proposed Action, and construct a new 16,000 SF tech pad (storage yard). This alternative would relocate the Operations Floor from Building 23260 and consolidate similar functions in a large separate building. In both alternatives, a manpower increase of approximately 400-600 jobs would occur. Under the No Action Alternative, the present facility configuration and environment would remain unchanged. Significant risks would be associated with the status quo. No excess secure facilities of adequate size or configuration would be available on Beale AFB to support the DCGS mission. Failure to provide additional space for increased DGS operations would result in mission failure, as more sensors employed around the world would outpace Air Force DCGS capabilities. Air Force DCGS mission degradation would ultimately deprive theater forces of critical, real-time data necessary for force protection and mission effectiveness. Without the DCGS mission upgrade, the worldwide Air Force intelligence and communication operations would be degraded.

The EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500-1580, and Air Force policy and procedures (32 CFR Part 989). This EA also satisfies the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code 21000-21177) and the Guidelines for CEQA (Sections 15000-15387, California Code of Regulations, Title 14, Chapter 3).

This FONSI/FONPA summarizes the results of the evaluation of construction and operation activities. The discussion focuses on activities that have the potential to change both the natural and human environments.

Summary of Environmental Impacts

No significant change in use of water, wastewater, solid waste, or natural gas utilities will occur and no impacts are expected. No significant increase in traffic is expected to occur, except from that of short-term construction crews. No impacts to the use, control, or management of airspace are anticipated as a result of the construction project. No recreation areas occur near the project area. No change in use of public services will occur and no impacts are expected. Hazardous materials, hazardous waste, pesticide management, and medical/biohazardous waste management practices are not expected to change as a result of the construction project or implementation of the Proposed Action. There are no structures or facilities within the project area that contain ordnance or radioactive materials; therefore, impacts are not expected. The project does not include any type of facility for which radon would be a concern. Noise generated from construction activities is expected to be temporary; no permanent or long-term impacts for noise are expected.

Because the new DCGS Operations Facility would not change the visual character or sensitivity of the site, no impacts to aesthetics are expected. The project would be consistent with the proposed land use designation for the project site in the base general plan; therefore no significant impacts are expected.

Construction of the new DCGS Operations Facility, associated parking lot, and support facilities would create an increase in demand for electrical usage on base that is within the capacity of the current electrical system.

The Proposed Action would create a slight increase in local population and employment, and would not have an effect on local unemployment.

Construction of the Proposed Action could have short-term, minor, adverse impacts to health and safety of construction workers. Construction contractors would be required to comply with federal and State safety regulations.

The Proposed Action overlies a groundwater plume associated with Environmental Restoration Program (ERP) Site SS-39. Excavation and grading associated with the construction of the DCGS Operations Facility, associated parking lot, and support facilities is not expected to reach the depth of the plume; therefore, no significant impacts are expected. Construction workers are required to have 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training for work conducted within the boundaries of an ERP site.

The Proposed Action includes installation of two diesel aboveground storage tanks (ASTs), which will be managed in accordance with the base's Spill Prevention Control and Countermeasures Plan; therefore, no significant impacts are expected.

Construction activities do not involve large-scale cutting, filling, or grading of the area, so geology and soils are not expected to be significantly altered. Standard construction practices would be implemented to control potential soil erosion and water runoff. A total of 0.002 acre of jurisdictional waters of the United States will be directly impacted by proposed development. The proposed development also has the potential to impact vernal pools located near the northeast corner of the development site. Approval of Section 401 certification and 404 permit applications would be obtained prior to commencement of construction activities. No surface water resources are near the project area and construction is not expected to have a significant impact on surface or groundwater resources.

Temporary impacts to air emissions are expected from construction equipment and increased traffic from construction crews; however, standard management practices would be used to control fugitive dust, and emissions from construction activities would be temporary. Emissions associated with the Proposed Action would not hinder maintenance of the National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS).

Construction of the Proposed Action will result in direct and indirect impacts to approximately 4.0 acres of previously undisturbed annual grassland, approximately 0.132 acre of potential habitat for federally-listed branchiopod species, and 0.002 acres of wetlands. Both development alternatives affect wetlands/vernal pool habitat; therefore, no alternative presents a practicable means of avoiding wetlands/vernal pool impacts entirely. Mitigation measures listed below would be implemented to offset impacts.

The project area has been heavily disturbed; no archaeological resources or historic properties are expected to be encountered during project activities. No significant impacts to cultural resources are expected.

Cumulative Impacts

The EA reviewed cumulative impacts that could result from the incremental impact of proposed activities when added to other past, present, or reasonably foreseeable future action. No significant cumulative impacts would be expected.

Mitigations

The EA concluded that no significant impacts to the environment would result from the construction and operation of the Proposed Action for most resources. Impacts to biological resources would require mitigation measures that must be implemented by the construction contractor prior to the start of demolition and construction activities for either the Proposed Action or Alternative 1 in order to support a FONSI/FONPA decision. Mitigation measures for biological and water resources include the following:

- **Measure 1:** Preservation and Restoration of wetland/vernal pools on a 3:1 and 1:1 ratio, respectively.
- **Measure 2:** Restrict work to the dry season.
- **Measure 3:** Preconstruction migratory bird surveys.
- **Measure 4:** Construction monitoring.
- **Measure 5:** Implementation of best management practices (BMPs) and Storm Water Pollution Prevention Plan (SWPPP).
- **Measure 6:** SWPPP and BMP oversight during construction.
- **Measure 7:** Environmental awareness training.
- **Measure 8:** Stake and flag boundaries of work areas.
- **Measure 9:** Stake and flag vernal pools and wetlands.
- **Measure 10:** Proper disposal of excavated soil.
- **Measure 11:** Survey for and relocate burrowing owls.

No additional mitigation measures would be required.

Conclusion

Based on the provisions set forth in the Proposed Action, all activities were found to comply with the criteria or standards of environmental quality and coordinated with the appropriate federal, State, and local agencies. The attached EA and a draft of this FONSI/FONPA were made available to the public on 19 April 2014 for a 30-day review period. No comments were received.

Summary of Findings

The attached EA, as incorporated by reference into this finding and attached hereto, analyzes the potential environmental impacts of activities associated with the Proposed Action and ISR Complex Alternative.

Per the requirements of 32 CFR 989.22(c), the EA provides mitigations to reduce adverse environmental impacts to a level of insignificance in lieu of preparing an Environmental Impact Statement (EIS). The specific mitigations relied upon to reduce impacts to a level of insignificance to support this finding are found in Table 2-1 in the attached EA. Identified mitigations will be further addressed in a mitigation plan developed in accordance with 32 CFR 989.22(d).

Findings

Finding of No Practicable Alternative. Reasonable alternatives were considered, but no other alternative to the Proposed Action meets the safety or operational requirements of the 9th Reconnaissance Wing. Pursuant to Executive Orders 11988 and 11990 and the authority delegated by Secretary of the Air Force Order 791.11, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed Action includes all practicable measures to minimize harm to the environment. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the U.S. Air Force.

Finding of No Significant Impact. After review of the EA prepared in accordance with the requirements of the NEPA, the Council on Environmental Quality (CEQ) regulations, and the Environmental Impact Analysis Process (EIAP), 32 CFR Part 989, as amended, and which is hereby incorporated by reference, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment. An Environmental Impact Statement (EIS) will not be prepared. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the U.S. Air Force.


ROY ALAN C. AGUSTIN, Colonel, USAF
Director of Installations and Mission Support

4 AUGUST 2014
Date

FINAL
ENVIRONMENTAL ASSESSMENT

**NEW DISTRIBUTED COMMON GROUND SYSTEM (DCGS) OPERATIONS FACILITY
BEALE AIR FORCE BASE,
CALIFORNIA**

JULY 2014

**COVER SHEET
ENVIRONMENTAL ASSESSMENT
FOR DCGS OPERATIONS FACILITY
AT BEALE AIR FORCE BASE, CALIFORNIA**

- a. Responsible Agency: U.S. Air Force (Air Force)
- b. Proposed Action: Construct a new Distributed Common Ground System (DCGS) Operations Facility, associated parking lot, and support facilities to supplement the existing facility.
- c. Written comments and inquiries regarding this document should be directed to: Ms. Jamie Visinoni, 9 CES/CEIE 6601 B Street, Beale AFB, CA 95903.
- d. Designation: Environmental Assessment (EA)
- e. Abstract: The purpose of this action is to construct a new DCGS Operations Facility, associated parking lot, and support facilities. The facility would be sited and constructed to comply with U.S. Air Force provisions for Sensitive Compartmented Information Facilities (SCIF). DCGS personnel and operations would expand from the existing facility. The existing facility would continue to be used for the same mission.

This EA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental impacts of the Proposed Action and alternatives. These alternatives were examined: the Proposed Action; Intelligence, Surveillance, and Reconnaissance (ISR) Alternative (Alternative 1); and the No-Action Alternative. The Proposed Action is to construct the new DCGS Operations Facility, associated parking lot, and support facilities. Alternative 1 includes construction of a large consolidated Operations Center that would include adequate space for the new DCGS Operations need and relocate other mission support functions within the same construction footprint as the Proposed Action. The No-Action Alternative involves continuing to operate the existing facility with no expansion.

The environmental resources potentially affected by the Proposed Action and Alternative 1 are land use and aesthetics, utilities, socioeconomics, health and safety, Environmental Restoration Program (ERP) sites, storage tanks, geology and soils, water resources, air quality, biological resources, and cultural resources. Based on the nature of the activities that would occur under the Proposed Action and alternatives, the Air Force has determined that no significant impacts are anticipated, except for biological resources. For impacts to biological resources, the Air Force has provided measures that will mitigate impacts to less than significant.

This document is also intended to satisfy the requirements of the California Environmental Quality Act, thereby allowing the California Regional Water Quality Control Board to rely upon it for its discretionary action for issuing Clean Water Act Section 401 certification.

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ACRONYMS AND ABBREVIATIONS

| | |
|-------------------|---|
| 9 IS | 9th Intelligence Squadron |
| AFB | Air Force Base |
| AFI | Air Force Instruction |
| APE | Area of Potential Effect |
| AST | aboveground storage tank |
| AT/FP | anti-terrorism/force protection |
| bgs | below ground surface |
| CA ANG | California Air National Guard |
| CAA | Clean Air Act |
| CARB | California Air Resources Board |
| CDFW | California Department of Fish and Wildlife |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CH ₄ | methane |
| CLS | Combat Logistics System |
| CO | carbon monoxide |
| CO ₂ | carbon dioxide |
| CO _{2e} | total equivalent emissions of CO ₂ |
| CRM | Cultural Resources Manager |
| CWA | Clean Water Act |
| DCGS | Distributed Common Ground System |
| DGS | Distributed Ground Station |
| DOD | Department of Defense |
| DPOC | DCGS PEDS Operation Center |
| EA | Environmental Assessment |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| ERP | Environmental Restoration Program |
| FONSI | Finding of No Significant Impact |
| FRAQMD | Feather River Air Quality Management District |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HAP | Hazardous Air Pollutant |
| HAZWOPER | Hazardous Waste Operations and Emergency Response |
| HFC | hydrofluorocarbon |
| ICRMP | Integrated Cultural Resources Management Plan |
| INRMP | Integrated Natural Resources Management Plan |
| ISR | Intelligence, Surveillance, and Reconnaissance |
| ISREC | ISR Emergency Center |
| LEED | Leadership in Energy and Environmental Design |
| µg/m ³ | micrograms per cubic meter |
| mgd | million gallons per day |
| MILCON | Military Construction |
| N ₂ O | nitrous oxide |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NIOSH | National Institute of Occupational Safety and Health |
| NO ₂ | nitrogen dioxide |
| NPDES | National Pollutant Discharge Elimination System |

| | |
|-------------------|--|
| NRHP | National Register of Historic Places |
| NSVAB | Northern Sacramento Valley Air Basin |
| OSHA | Occupational Safety and Health Administration |
| PAVE PAWS | PAVE Phased-Array Warning System |
| pCi/l | picoCuries per liter |
| PEDS | Processing, Exploitation, and Dissemination System |
| PFC | perfluorocarbon |
| PG&E | Pacific Gas and Electric |
| PM ₁₀ | particulate matter equal to or less than 10 microns in diameter |
| PM _{2.5} | particulate matter equal to or less than 2.5 microns in diameter |
| POL | petroleum, oil, and lubricants |
| ppm | parts per million |
| PSD | Prevention of Significant Deterioration |
| RCRA | Resource Conservation and Recovery Act |
| ROI | Region of Influence |
| SAMP | Special Area Management Plan |
| SATCOM | satellite communication |
| SCIF | Sensitive Compartmented Information Facility |
| SF | square foot |
| SF ₆ | sulfur hexafluoride |
| SHPO | State Historic Preservation Officer |
| SO ₂ | sulfur dioxide |
| SWPPP | Storm Water Pollution Prevention Plan |
| SY | square yard |
| TCE | tetrachloroethylene |
| TCP | Traditional Cultural Property |
| TMET | transportable medium earth terminal |
| tpy | tons per year |
| U.S.C. | U.S. Code |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| UST | underground storage tank |
| VOC | volatile organic compound |

1.0 PURPOSE OF AND NEED FOR ACTION

This Environmental Assessment (EA) evaluates the potential environmental impacts of the construction and operation of a New Distributed Common Ground System (DCGS) Operations Facility, associated parking lot, and support facilities including sidewalks, emergency generators, and landscaping; and the relocation of the transportable medium earth terminal (TMET) and the satellite communications (SATCOM) facility, on Beale Air Force Base (AFB), California (Figure 1-1).

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. 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 Air Force policy and procedures (32 CFR Part 989).

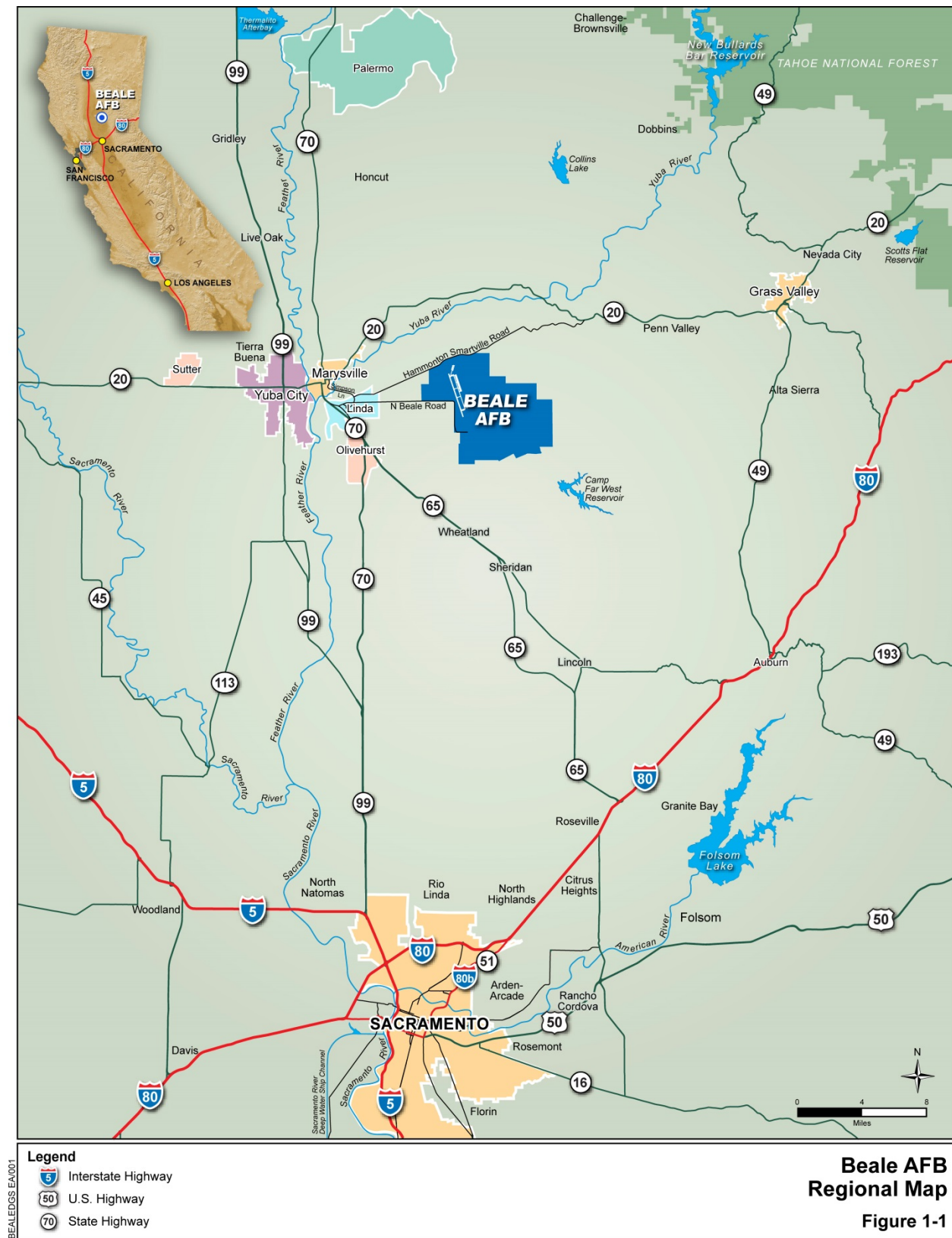
This document is also intended to be compliant with the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code 21000-21177) and the Guidelines for CEQA (Sections 15000-15387, California Code of Regulations, Title 14, Chapter 3) for the purposes of fulfilling State permitting requirements.

1.1 PURPOSE AND NEED

Beale AFB's existing Distributed Ground Station (DGS) facility's operations capabilities are inhibited due to the size of the facility. Adequate space is required for the expanded DGS mission supporting the Secretary of Defense directive for continued growth of unmanned aircraft systems and associated intelligence processing, exploitation, and dissemination. The mission growth pertaining to Beale AFB requires an adequate DGS ground platform (facilities and infrastructure) to enable expanded operation of the Global Intelligence, Surveillance, and Reconnaissance (ISR) weapon system.

Site Selection Criteria. Screening is a process that evaluates an alternative's ability to fulfill the action's purpose and need while meeting the base's mission development standards. The purpose and need statement is a declaration of the broad goals and objectives of the new DCGS Operations Facility. Selection criteria are based on the purpose and need statement and are used to develop and narrow the range of alternatives.

According to the Worldwide ISR Operations Facility Plan and the 480 ISR/548 ISR Group Campus Area Development Plan, changes in technology and increases in mission requirements have caused the DCGS ISR mission to outgrow the available facility space at Beale AFB (U.S. Air Force, 2010b; U.S. Air Force, 2013a). The increased mission operations of the DGS require at least 85,000 SF of Sensitive Compartmented Information Facility (SCIF) space.



Collocation with existing facilities is another, desired criteria for the new facility. Currently, DCGS support functions are segregated from the main operations facility. Collocation will allow the mission functions to consolidate and maximize efficiencies into one campus location. Site selection criteria are as follows:

- The new site must be near the existing DCGS mission activities due to sensitive information exchange.
- Keeping secure operations consolidated is necessary to control entry to these areas.
- Site must have space for adjacent parking lot and other support facilities.
- Site must avoid wetlands or the site must be selected with intent to minimize impacts to wetlands.
- Site must be in a designated development area per the Beale AFB General Plan.

In addition to other requirements, the U.S. Air Force is required to comply with Executive Order (EO) 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, which provides that all new federal facility planning include consideration of sites that are pedestrian friendly, near existing employment centers, and accessible to public transit. In addition, new facilities must comply with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* (U.S. EPA, 2008).

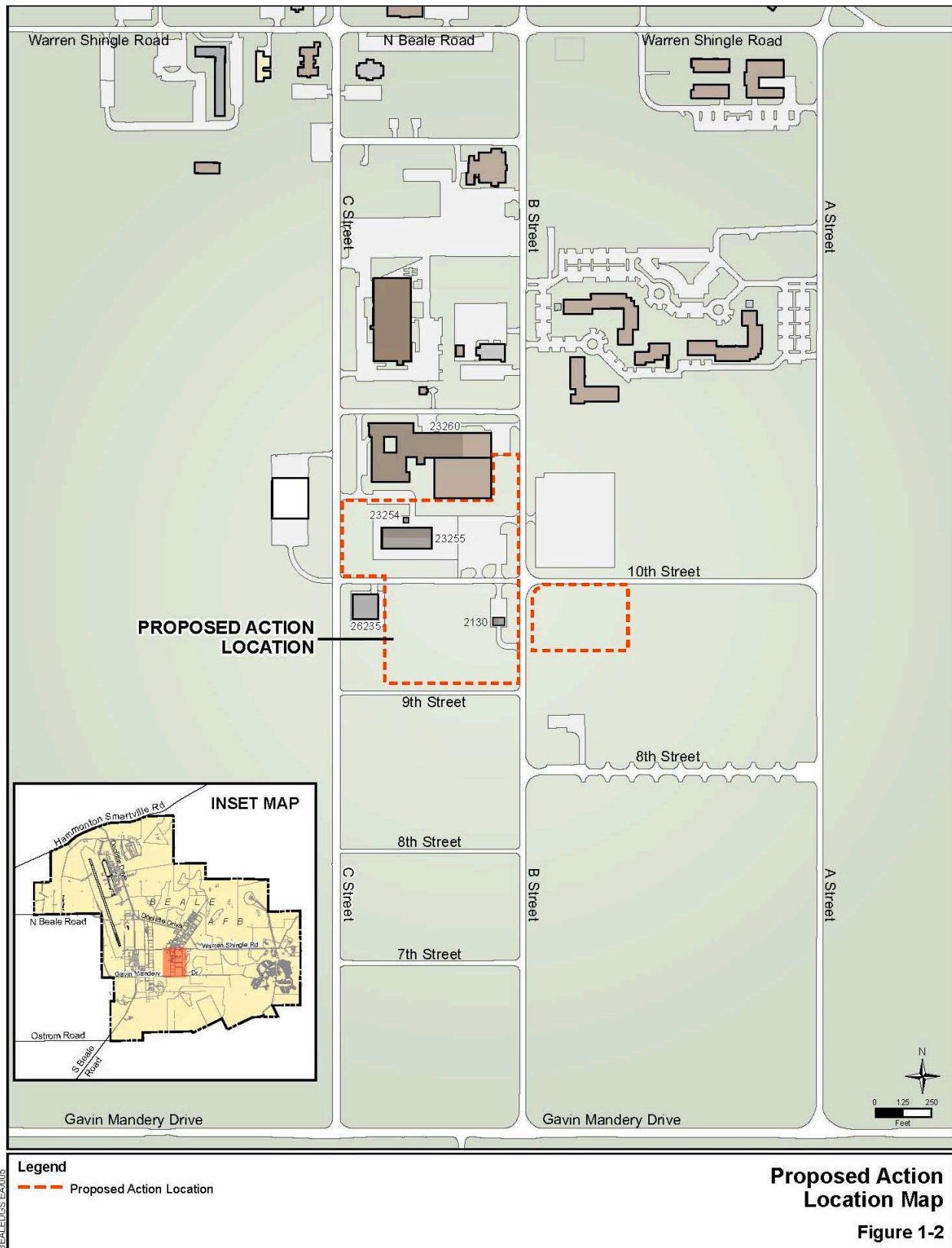
1.2 LOCATION OF THE PROPOSED ACTION

The proposed facility would be within the main cantonment of Beale AFB, south of Building 23260 (the current DGS facility), and between 9th and 11th streets and B and C streets. The new Facility would be constructed on the location of the current Tech Pad, Building 23254; the associated parking lot would be constructed just south of 10th Street (Figure 1-2).

1.3 SCOPE OF ENVIRONMENTAL REVIEW

This document is “issue-driven,” in that it concentrates only on those resources that may be affected by implementation of the Proposed Action, Alternative Action, or the No-Action Alternative. The EA describes and addresses the potential environmental impacts of the activities associated with the construction and operation of the new DCGS Operations Facility, associated parking lot, and support facilities. The EA also evaluates the potential environmental impacts of the No-Action Alternative.

Consistent with 32 CFR 989 and the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action, Alternative Action, and No-Action Alternative.



1.4 FEDERAL AND STATE PERMITS, LICENSES, AND FEES

The U.S. Air Force, prior to the initiation of construction activities, would obtain any required permits, including a CWA Section 404 permit issued by the U.S. Army Corps of Engineers and a CWA Section 401 certification issued by the Regional Water Quality Control Board (RWQCB) prior to the initiation of construction and demolition activities. The Air Force would ensure compliance with applicable Air Force, federal, and local regulations and/or requirements.

1.5 INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP), NATIVE AMERICAN TRIBAL CONSULTATION, AND PUBLIC INVOLVEMENT

In compliance with the Endangered Species Act (ESA), Beale AFB has initiated Section 7 consultation with the USFWS. A formal consultation letter and Biological Assessment were sent to the agency on 4 April 2014. A Biological Opinion was received on 27 May 2014.

In compliance with Section 106 of the National Historic Preservation Act (NHPA), Beale AFB has initiated consultation with the California SHPO regarding potential effects of the Proposed Action. A letter was provided to the agency on 9 April 2014. Concurrence was received on 22 April 2014.

The results of consultation efforts are incorporated into this EA as Appendix A and requirements of USFWS and the SHPO will be passed to the construction contractor for incorporation into the construction plan.

The Draft EA was made available for a 30 day public review and comment on 19 April 2014 (Appendix A). Copies of the Draft EA were made available for review and provided to individuals and agencies listed in Chapter 7 of the EA. No comments were received.

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2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

This chapter provides a description of the Proposed Action and alternatives, discusses the alternatives considered but eliminated from further study, and provides a comparison of the potential environmental impacts of the Proposed Action and alternatives.

2.1.1 Background

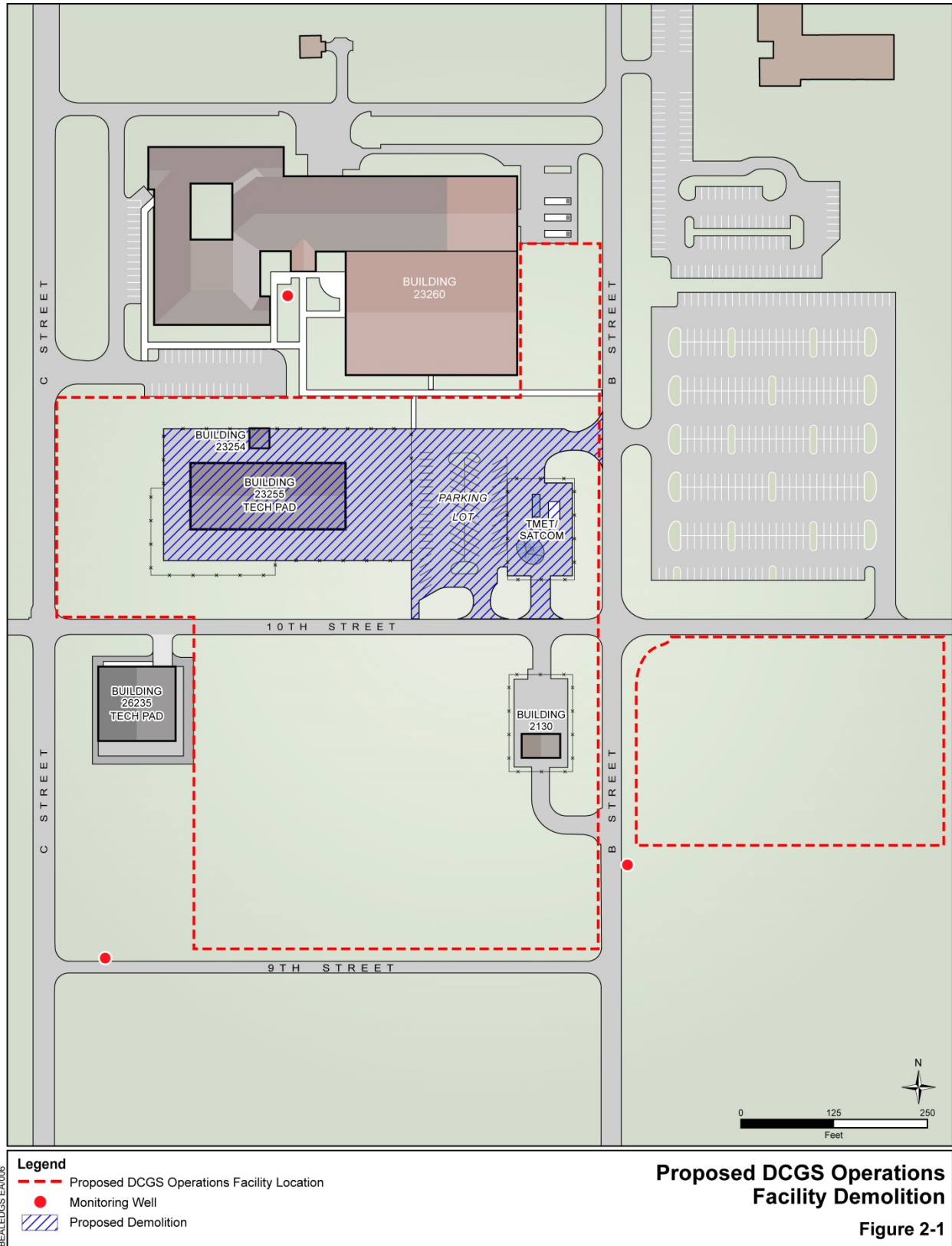
The current DGS facility is located in Building 23260 (see Figure 1-2). The site of the proposed DCGS Operations Facility, associated parking lot, and support facilities is currently occupied by a tech-pad and a parking lot that is in violation of anti-terrorism/force protection (AT/FP) standoff requirements. The site of the proposed associated parking lot is situated just south of 10th Street on undeveloped land.

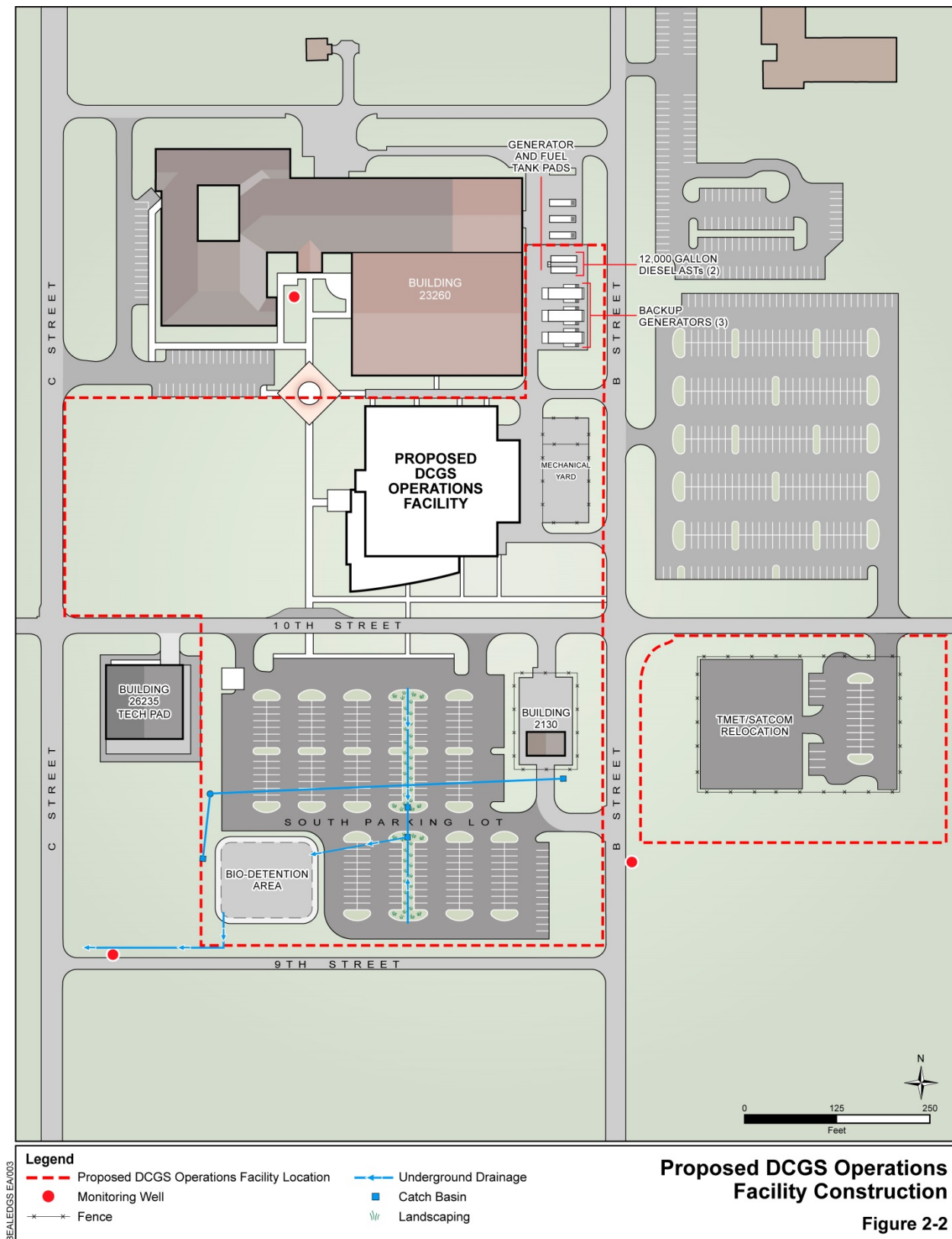
2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would involve the construction and operation of a new DCGS Operations Facility, associated parking lot, and support facilities, including sidewalks, emergency generators, and landscaping, and the relocation of the TMET/SATCOM facility to the northwest corner of 10th and B Streets on Beale AFB (Figures 2-1 and 2-2). The proposed new DCGS Operations Facility would be constructed to comply with U.S. Air Force provisions for location and operation of SCIFs. Use of this new facility would allow Beale AFB to expand DGS mission operation capabilities. The associated parking lot would accommodate the personnel growth and adhere to AT/FP standoff requirements.

In addition to meeting the expanded DGS mission growth, the new building would accommodate the relocation of the DCGS Processing, Exploitation, and Dissemination System (PEDS) Operation Center (DPOC) operation, ISR Emergency Center (ISREC), and Combat Logistics System (CLS) training functions all within the same facility. The mission growth pertaining to Beale AFB requires an adequate DGS ground platform (facilities and infrastructure) to enable expanded operation of the Global ISR weapon system. The project consists of the following:

- Construction of a new 85,000 square foot (SF) DCGS Operations Facility including command sections, operations floor, mission briefing room, training area, and back shop.
- Installation of two 12,000-gallon diesel aboveground storage tanks (ASTs).
- Installation of three backup generators.





- Installation of fencing around the generators and ASTs and around the mechanical yard.
- Removal of the approximately 6,500 square yard (SY) (58,500 SF) tech pad.
- Construction of a mechanical yard.
- Removal of an existing parking lot.
- Construction of a new 300-space parking lot.
- Removal of existing sidewalks.
- Construction of new sidewalks.
- Construction of a bioretention area, approximately 27,000 cubic feet, capable of holding up to 201,974 gallons of water.
- Relocation of the TMET/SATCOM pad and associated parking to a new location (approximately 102,000 SF) at the northwest corner of 10th and B Streets.

The new building would be connected to existing electrical, communication, natural gas, water, and sanitary sewer systems and lines on the project site.

The areas of existing pavement on the site that would not be removed would be reused in their present state.

The bioretention area is designed to slow sheet flow off the parking lot during storm events and trap particulates before the water enters the drainage on the southern end of the site.

Construction activities are anticipated to be completed within an 18- to 24-month time period.

The total area that would be disturbed by proposed construction activities is estimated to be 10.87 acres.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

2.3.1 Alternative 1 – Develop ISR Complex

Alternative 1 would construct a larger consolidated operations facility (105,000 SF building) and a large storage yard (16,000 SF) on adjacent property. All other components of the project would be the same as the proposed action. Alternative 1 consolidates similar functions from adjacent facility 23260 to allow secure functions in one facility. In addition, the large storage yard would expand the existing footprint of the tech pad to fully support operational storage near the DCGS facility. This expansion would fill vernal pools that are located south of the existing tech pad.

The new building would be connected to existing electrical, communication, natural gas, water, and sanitary sewer systems and lines on the project site.

The areas of existing pavement on the site would be reused in their present state.

2.3.2 No-Action Alternative

Under the No-Action Alternative, the Air Force would not construct a new DCGS Operations Facility, associated parking lot, and support facilities, would not relocate the TMET/SATCOM facility, and would continue to conduct DCGS activities in the existing DGS facility (Building 23260). Significant risks would be associated with the status quo. No excess secure facilities of adequate size or configuration would be available on Beale AFB to support the DCGS mission. Space is nonexistent to adequately house additional personnel and equipment resulting from the expanded mission within existing SCIF space at Beale AFB. Failure to provide additional space for increased DGS operations would result in mission failure, as more sensors employed around the world would outpace Air Force DCGS capabilities. Air Force DCGS mission degradation would ultimately deprive theater forces of critical, real-time data necessary for force protection and mission effectiveness.

2.3.3 Alternatives Eliminated from Further Consideration

Alternatives to the Proposed Action that were considered but eliminated include expanding and renovating the existing facility and replacing the existing facility. These alternatives were eliminated from further consideration as discussed below.

Expand and Renovate Existing Facilities: This alternative would expand Building 23260 by 50,000 SF, which includes the growth of the operations floor to accommodate the additional personnel and equipment required. The alternative would also renovate approximately 22,000 SF in Building 2145 in phases to provide workspace for the 9 IS and warehouse storage for the 9 IS Group overall, replacing the space currently in the warehouse wing of Building 23260. The alternative would reconfigure the warehouse in Building 23260 with a new enclosed second level/mezzanine and convert the entire warehouse area to offices for the Air National Guard and Air Force Reserve units. Under this alternative the DPOC function would remain in Building 2145. Due to site constraints, expansion of the existing facility would not be able to achieve the total requirement of 85,000 SF. Additionally, mission-related functions in renovated facilities would continue to be segregated from the main core functions of DGS operations. Therefore, this alternative was eliminated from further consideration.

Replace Facility at an Alternative Location: This alternative would construct a new consolidated facility (either 1 large or multiple small buildings), parking lots, storage pad and necessary equipment to support the DCSG function. The nearest site large enough for the DCGS expanded workload would be an undeveloped area located at 30th and B Street. Although this site would fit the

facilities it was removed from further consideration because it would not meet the primary site selection criteria for timely exchange of secure information. The remaining DCGS facilities would still be located several blocks away and would impede information exchange and the ability to maintain one secure compound with entry control. Additionally, the site would also have limited wetland impacts.

2.4 COMPARISON OF ENVIRONMENTAL IMPACTS

Table 2-1 provides a comparative analysis of the potential environmental effects of implementing the Proposed Action and alternatives. A detailed discussion is presented in Chapter 4.0, Environmental Impacts.

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 1 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|--|--|--|
| Land Use | <p>Impacts: The Proposed Action would be consistent with the proposed land use designation for the area in the base general plan.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 would be consistent with the proposed land use designation for the area in the base general plan.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to existing land use would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |
| Aesthetics | <p>Impacts: The Proposed Action would not result in a significant change to the medium visual sensitivity of the area.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 would not result in a significant change to the medium visual sensitivity of the area.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to existing aesthetic quality would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 2 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|------------------------|--|--|--|
| Utilities (Electrical) | <p>Impacts: The Proposed Action would create an increase in demand for electrical usage on base that is within the capacity of the current electrical system.</p> <p>Because the new facility is required to achieve Leadership in Energy and Environmental Design (LEED) Silver Certification, the Proposed Action is not expected to have significant impacts to energy usage on Beale AFB.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 would create an increase in demand for electrical usage on base that is within the capacity of the current electrical system.</p> <p>Because the new facility is required to achieve LEED Silver Certification, the Proposed Action is not expected to have significant impacts to energy usage on Beale AFB.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to existing utility use would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |
| Socioeconomics | <p>Impacts: The Proposed Action would create a slight increase in population (0.7 percent) and employment (0.9 percent) within Sutter and Yuba Counties. No impacts are expected to unemployment.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 would create a slight increase in population (0.7 percent) and employment (0.9 percent) within Sutter and Yuba Counties. No impacts are expected to unemployment.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to existing population and employment would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 3 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|---|---|---|
| Health and Safety | <p>Impacts: The Proposed Action could cause impacts to health and safety of construction workers. Construction contractors would comply with federal and State health and safety standards.</p> <p>The Proposed Action is located within the footprint of ERP Site SS-39. The construction workers would have 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 could cause impacts to health and safety of construction workers. Construction contractors would comply with federal and State health and safety standards.</p> <p>Alternative 1 is located within the footprint of ERP Site SS-39. The construction workers would have 40-hour HAZWOPER training.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to existing health and safety conditions would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 4 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|---|---|---|
| ERP Sites | <p>Impacts: The Proposed Action overlies a groundwater plume associated with ERP Site SS-39. Excavation and grading associated with the construction of the Proposed Action is not expected to reach the depth of the plume (25 feet bgs). No significant impacts would be expected.</p> <p>Due to a TCE and carbon tetrachloride plume in the area, soil vapor intrusion could present a health hazard. The construction contractor should implement soil vapor best management practices to ensure safety.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 overlies a groundwater plume associated with ERP Site SS-39. Excavation and grading associated with the construction of Alternative 1 is not expected to reach the depth of the plume (25 feet bgs). No significant impacts would be expected.</p> <p>Due to a TCE and carbon tetrachloride plume in the area, soil vapor intrusion could present a health hazard. The construction contractor should implement soil vapor best management practices to ensure safety.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to ERP Sites would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 5 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|--|--|---|
| Storage Tanks | <p>Impacts: The Proposed Action includes installation of two diesel ASTs, which will be managed in accordance with the base's SPCC and Tank Management Plans. No significant impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Alternative 1 includes installation of two diesel ASTs, which will be managed in accordance with the base's SPCC and Tank Management Plans. No significant impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No changes to management of storage tanks would occur; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p> |
| Geology and Soils | <p>Impacts: Surface disturbance may cause soil erosion; however, standard construction practices would be implemented to control soil erosion.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: Surface disturbance may cause soil erosion; however, standard construction practices would be implemented to control soil erosion.</p> <p>Mitigation: No mitigation measures would be required.</p> | <p>Impacts: No soil disturbance would occur; therefore, no impacts would be anticipated.</p> <p>Mitigation: No mitigation measures would be required.</p> |
| Water Resources | <p>Impacts: Soil disturbance could cause a decrease in water quality if erosion occurs; however, standard construction practices would be implemented to control soil erosion.</p> | <p>Impacts: Soil disturbance could cause a decrease in water quality if erosion occurs; however, standard construction practices would be implemented to control soil erosion.</p> | <p>Impacts: No construction activities would occur; therefore, no impacts would be anticipated.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 6 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|--|---|---|
| | <p>The Proposed Action would result in direct impacts to approximately 0.002 acre of Waters of the U.S. Mitigation measures would be implemented to offset impacts from the Proposed Action.</p> <p>Mitigation: Measure 1: Restoration of man-made/degraded ditches on a 1:1 ratio. Measure 2: Restrict work to the dry season. Measure 3: BMP and SWPPP implementation. Measure 4: SWPPP BMP oversight during construction. Measure 5: Stake and flag vernal pools and wetlands. Measure 6: Proper disposal of excavated soil.</p> | <p>Alternative 1 would result in greater direct impacts to Waters of the U.S. Mitigation measures would be implemented to offset impacts from this alternative.</p> <p>Mitigation: Measure 1: Restoration of man-made/degraded ditches on a 1:1 ratio. Measure 2: Restrict work to the dry season. Measure 3: BMP and SWPPP implementation. Measure 4: SWPPP BMP oversight during construction. Measure 5: Stake and flag vernal pools and wetlands. Measure 6: Proper disposal of excavated soil.</p> | <p>Mitigation: No mitigation measures would be required.</p> |
| Air Quality | <p>Impacts: Temporary impacts to air emissions are expected from construction equipment and increased traffic from construction crews; however, standard management practices would be used to control fugitive dust, and emissions from construction activities would be temporary.</p> | <p>Impacts: Temporary impacts to air emissions are expected from construction equipment and increased traffic from construction crews; however, standard management practices would be used to control fugitive dust, and emissions from construction activities would be</p> | <p>Impacts: No construction activities would occur; therefore, no impacts would be anticipated.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 7 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|----------------------|--|--|--|
| | Emissions associated with the Proposed Action would not hinder maintenance of the NAAQS or CAAQS. | temporary. Emissions associated with Alternative 1 would not hinder maintenance of the NAAQS or CAAQS. | |
| | The emergency generators and associated diesel fuel ASTs installed under the Proposed Action would slightly increase air emissions on base. These items would be managed under the current SPCC, Tank Management Plan, and Air Quality Permit to Operate. | The emergency generators and associated diesel fuel ASTs installed under Alternative 1 would slightly increase air emissions on base. These items would be managed under the current SPCC, Tank Management Plan, and Air Quality Permit to Operate. | |
| | Mitigation: No mitigation measures would be required. | Mitigation: No mitigation measures would be required. | Mitigation: No mitigation measures would be required. |
| Biological Resources | Impacts: Habitat is present at the location of the Proposed Action for several federally-listed vernal pool fairy shrimp species and the State Species of Special Concern burrowing owl. Implementation of the Proposed Action could result in take of a federally-listed or State-listed species. | Impacts: Habitat is present at the location of Alternative 1 for several federally-listed vernal pool fairy shrimp species and the State Species of Special Concern burrowing owl. Implementation of the ISR Complex Alternative could result in take of a federally-listed or State-listed species. | Impacts: No construction activities would occur; therefore, no impacts would be anticipated. |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 8 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|-------------------|---|--|--|
| | <p>The Proposed Action would result in direct and indirect impacts to approximately 4.0 acres of previously undisturbed annual grassland and approximately 0.132 acre of wetland and potential habitat for federally-listed branchiopod species.</p> <p>Mitigation measures would be implemented to offset impacts from the Proposed Action.</p> <p>Mitigation: Measure 1: Preservation and restoration of vernal pools on a 3:1 and 1:1 ratio, respectively. Measure 2: Restrict work to the dry season. Measure 3: Preconstruction migratory bird surveys. Measure 4: Construction monitoring. Measure 5: BMP and SWPPP implementation. Measure 6: SWPPP BMP oversight during construction. Measure 7: Environmental awareness training.</p> | <p>Alternative 1 would result in greater direct and indirect impacts to previously undisturbed annual grassland and wetland and potential habitat for federally-listed branchiopod species.</p> <p>Mitigation measures would be implemented to offset impacts from Alternative 1.</p> <p>Mitigation: Measure 1: Preservation and restoration of vernal pools on a 3:1 and 1:1 ratio, respectively. Measure 2: Restrict work to the dry season. Measure 3: Preconstruction migratory bird surveys. Measure 4: Construction monitoring. Measure 5: BMP and SWPPP implementation. Measure 6: SWPPP BMP oversight during construction. Measure 7: Environmental awareness training.</p> | <p>Mitigation: No mitigation measures would be required.</p> |

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action, Alternative 1, and No-Action Alternative
Page 9 of 9

| Resource Category | Proposed Action | Alternative 1 | No-Action Alternative |
|--------------------|---|---|---|
| | Measure 8: Stake and flag boundaries of work areas. Measure 9: Stake and flag vernal pools and wetlands. Measure 10: Proper disposal of excavated soil. Measure 11: Survey for and relocate burrowing owls. | Measure 8: Stake and flag boundaries of work areas. Measure 9: Stake and flag vernal pools and wetlands. Measure 10: Proper disposal of excavated soil. Measure 11: Survey for and relocate burrowing owls. | |
| Cultural Resources | Impacts: The project site has been surveyed, and no historic properties would be expected to be encountered during project activities. No significant impacts would be expected. Mitigation: No mitigation measures would be required. | Impacts: The project site has been surveyed, and no historic properties would be expected to be encountered during project activities. No significant impacts would be expected. Mitigation: No mitigation measures would be required. | Impacts: No construction activities would occur; therefore, no impacts would be anticipated. Mitigation: No mitigation measures would be required. |

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3.0 AFFECTED ENVIRONMENT

This chapter describes the current environmental condition of the project area and its region of influence (ROI). It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from the Proposed Action and alternatives. The baseline conditions assumed for the purposes of analysis are the existing conditions within the project area.

The ROI to be evaluated will be defined for each resource area potentially affected by the Proposed Action and alternatives. The ROI determines the geographical area to be addressed as the affected environment. Although the immediate project area may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., water resources, air quality) may transcend these limits.

Resources that have a potential for impact were considered in more detail in order to provide the decision maker with sufficient evidence and analysis to determine whether or not additional analysis is required pursuant to 40 CFR Part 1508.9. The resources analyzed in more detail are land use, including aesthetics, utilities (electrical), socioeconomics, health and safety, hazardous materials and waste (ERP Sites and storage tanks), geology and soils, water resources, air quality, biological resources, and cultural resources. The affected environment and the potential environmental impacts relative to these resources are described in Chapters 3.0 and 4.0, respectively.

Initial analysis indicated that the Proposed Action would not result in either short- or long-term impacts to utilities (water, wastewater, solid waste, natural gas), socioeconomics, transportation, airspace, recreation, public services, hazardous materials and waste management (hazardous material management, hazardous waste management, pesticide usage, medical/biohazardous waste, ordnance, radon, and radioactive materials), noise, and environmental justice. The reasons for not addressing these resources are briefly discussed in the following paragraphs.

Utilities (Water, Wastewater, Solid Waste, Natural Gas). Natural gas systems within Beale AFB are provided by Pacific Gas and Electric (PG&E). Water, wastewater, and solid waste systems that service Beale AFB are contained on-base. While the construction of the Proposed Action or Alternative 1 will require an increase in utility usage, the Beale AFB General Plan concludes that the existing provided and on-base utility systems are adequate for expanded mission demands. Significant impacts to utility systems within the region and at Beale AFB are not expected and are not analyzed further in this EA.

Transportation. The Proposed Action or Alternative 1 would involve an increase in daily traffic to the new facility. Because a large portion of the new employees are expected to live on base, the increase in daily vehicle traffic would be limited to on-base. Because the new facility would be operated 24 hours per day, 7 days per week, daily vehicle traffic to the location would be spread out over

shifts and would not result in a significant decrease in the level of service to roadways providing access to the facility. Daily trips associated with construction employees would be short-term (as long as construction activities are occurring) and are not anticipated to decrease the level of service on roadways providing access to the site. Therefore, impacts to transportation are not expected and are not analyzed further in this EA.

Airspace. No aircraft operations are associated with the Proposed Action and alternatives, and they would not be situated in an area that would affect any airfield operations. Impacts to airspace are not expected and are not analyzed further in this EA.

Recreation. Recreation resources at Beale AFB include a recreation facility (the Harris Fitness center), walking trails, designated hunting and fishing areas, and other open spaces. The proposed action does not involve construction or expansion of recreational areas or facilities. The proposed action would not impact existing recreation facilities. Recreation at Beale AFB would not be impacted by the Proposed Action and therefore is not analyzed in detail.

Public Services. Public services (e.g., fire, police, hospital) are provided by on-base personnel. The increase in personnel associated with the Proposed Action and alternatives is not anticipated to impact public services provided by the base. Therefore, potential impacts to public services are not analyzed further in this EA.

Hazardous Material Management. During construction activities, small amounts of hazardous materials are expected to be utilized by the contractor; therefore, the potential for spill would exist. Hazardous materials likely to be used during construction activities include adhesives, motor fuels, paints, thinners, solvents, and petroleum, oil, and lubricants (POL). Storage, handling, and transportation of hazardous materials would be conducted in accordance with applicable regulations and procedures. Any spills or releases of hazardous materials would be cleaned up by the contractor.

Only household cleaning supplies (e.g., window cleaners, floor wax, toilet bowl cleaners) are expected to be used at the proposed facility. Hazardous materials management procedures are not expected to be impacted and are not analyzed further in this EA.

Hazardous Waste Management. Small quantities of hazardous waste would be generated during construction activities. The construction contractor would be responsible for following applicable regulations for management of any hazardous waste generated. Any spills or releases of fuel or oil from construction equipment would be cleaned up by the contractor. The contractor would be responsible for the off-site disposal of any hazardous waste in accordance with applicable regulations.

Activities at the new DCGS Operations Facility would generate hazardous waste similar to those generated at the existing facility. Hazardous waste production would neither increase nor decrease. The proposed Facility would continue to use only household cleaning supplies (e.g., window cleaners, floor wax, toilet

bowl cleaners); only small quantities of household hazardous waste would be generated (i.e., residual household cleaning supplies within their containers). Because any hazardous waste generated during construction activities and during operation of the facility would be managed in accordance with applicable regulations, no impacts are anticipated; and hazardous waste management procedures are not analyzed further in this EA.

Pesticide Usage. The Proposed Action and alternatives would not result in any change to existing pesticide usage on the base. Therefore, impacts from pesticide usage are not expected and are not analyzed further in this EA.

Medical/Biohazardous Waste. The Proposed Action and alternatives would not result in any change to existing medical/biohazardous waste production on the base. Therefore, impacts from medical/biohazardous waste are not expected and are not analyzed further in this EA.

Ordnance. A Military Munitions Response Program (MMRP) records search was recently conducted for Beale AFB. The work plan for site remediation does not identify any areas for further investigation near the Proposed Action or Alternative 1. The Proposed Action and alternatives would not require the use of ordnance. Therefore, impacts from ordnance are not expected and are not analyzed further in this EA.

Radon. Yuba County is within U.S. Environmental Protection Agency (EPA) radon zone 2, which indicates indoor average radon levels of between 2 and 4 picoCuries per liter (pCi/l) (U.S. Environmental Protection Agency, 1999). Because indoor average radon levels in the region are below the U.S. EPA recommended mitigation level of 4.0 pCi/l, impacts from radon would not be expected and are not analyzed further in this EA.

Radioactive Materials. The Proposed Action and alternatives would not require the use of radioactive materials. Therefore, impacts from radioactive materials are not expected and are not analyzed further in this EA.

Noise. The Proposed Action and alternatives would not result in any changes to existing noise conditions. Noise associated with construction of the new Facility would be temporary and intermittent. Impacts from noise are not expected and are not analyzed further in this EA.

Environmental Justice. Socioeconomic impacts are expected to be beneficial under the Proposed Action. In addition, any potential environmental impacts identified for resource areas in this EA would occur on the base; off-base populations would not be affected. Based on these findings, disproportional impacts to low-income, minority, and child populations are not expected and are not analyzed further in this EA.

3.1 LOCAL COMMUNITY

Beale AFB is situated on approximately 23,192 acres and is in Yuba County, California, approximately 40 miles north of Sacramento and 13 miles east of Marysville and Yuba City (U.S. Air Force, 2011a) (see Figure 1-1).

3.1.1 Land Use

The ROI for land use includes the proposed development site and surrounding area. According to the 2011 Beale Air Force Base General Plan, the area is currently designated as administration and open space (U.S. Air Force, 2011a).

3.1.2 Aesthetics

Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in the analysis of these resources include visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is characterized in terms of high, medium, and low levels. High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in a remote, pristine environment. High-sensitivity views would include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality.

Medium visual sensitivity is characteristic of areas where human influence and modern civilization are evident and the presence of motorized vehicles is commonplace. These landscapes generally have features containing varieties in form, line, color, and texture but tend to be more common than high visual sensitivity areas.

Low visual sensitivity areas tend to have minimal landscape features with little change in form, line, color, and texture.

The visual environment of the proposed development site and surrounding areas is characteristic of an urban environment. These areas are mostly developed with roads, vehicle parking lots, and other structures. The present appearance of the site includes large structures, a dish antenna, and associated vehicle parking areas. The area surrounding the site consists of open fields and several buildings. Based on the developed nature of the proposed project site and areas surrounding the site, the ROI is considered to have a medium visual sensitivity.

3.1.3 Utilities (Electrical)

The ROI for the electrical system includes the service area for the supplier that services Beale AFB.

PG&E is the primary supplier of electrical power to Beale AFB. Power is delivered by three transmission lines to two metering points. These lines enter Beale AFB at the Grass Valley Substation. All substations, with the exception of the Doolittle Substation, have two transformers each, which are individually

capable of supporting the full load of the substation. Most areas of the installation have redundant transmissions lines to increase reliability (U.S. Air Force, 2011a). At peak demand, the installation is at approximately 35 percent of the design capacity of its electrical system (U.S Air Force, 2011a).

Energy Usage

EO 13514 requires identification of and analysis of impacts to energy usage and alternative energy sources from all new federal facility construction projects. For the purposes of this EA, energy usage will be analyzed for the project as a whole.

3.1.4 Socioeconomics

For the purpose of this analysis, socioeconomics is evaluated in terms of population and employment. Because DCGS personnel reside at Beale AFB or within Sutter and Yuba Counties, the majority of potential effects from the actions under consideration would likely occur in these areas. Therefore, the socioeconomic ROI for proposed activities consists of Sutter and Yuba Counties.

Population

The base population, including military personnel, civilian workers, and dependents, totals 13,337 persons (U.S. Air Force, 2011b). Sutter County has a 2010 population of 94,737 (U.S. Census, 2014). Yuba County has a 2010 population of 72,155. Sutter County has approximately 2,200 vacant housing units. Yuba County has approximately 3,500 vacant housing units.

Employment

There are 4,895 active duty military personnel assigned to Beale AFB. In addition, Beale AFB employs 839 appropriated fund civilian employees and 305 non-appropriated fund civilians, contractors, and private-business employees. The December 2013 employment for Sutter County totaled 35,279; Yuba County employment totaled 23,079 (U.S. Department of Commerce, 2014). The unemployment rate for Sutter County in December 2013 was 15.9 percent; the Yuba County unemployment rate in December 2013 was 14.8 percent.

The operation of the base is an important contribution to the economy of the region through both direct employment and purchases from local businesses. Beale AFB's annual military and civilian payroll is \$255.9 million, and the Air Force contributes an estimated \$90.4 million in construction and service contracts and other purchases from local businesses. Beale AFB has a total annual economic impact of over \$426.6 million for Sutter and Yuba Counties (U.S. Air Force, 2011b).

3.1.5 Health and Safety

Aspects of safety relevant to this EA are limited to those associated with construction activities. Contractors performing construction activities at Beale

AFB are responsible for following federal and California Occupational Safety and Health Administration (OSHA) and National Institute of Occupational Safety and Health (NIOSH) safety regulations and worker compensation programs, and are required to conduct construction activities in a manner that does not pose any additional risk to workers or personnel. Occupational health and safety is the responsibility of the construction contractor.

One active ERP site underlies the proposed project location. Workers performing ground-disturbing activities within the boundaries of an ERP site are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Any work performed in a known ERP site on Beale AFB must be approved by Air Combat Command and the Air Force Civil Engineer Center prior to the initiation of construction activities.

3.2 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Beale AFB are governed by specific environmental regulations. For the purpose of the following analysis, the term “hazardous material” or “hazardous waste” will mean those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601, et seq., as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901-6992, as amended. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment when released into the environment.

The ROI for hazardous materials and hazardous waste encompasses those areas that could potentially be exposed to a release during construction and operation of the Proposed Action.

3.2.1 Environmental Restoration Program

There are a total of 40 ERP sites throughout Beale AFB. Two ERP sites have been identified in the proposed project area. The Proposed Action falls within ERP Sites ST-22 and SS-39.

ERP site ST-22 consists of underground storage tanks (USTs) currently or formerly located on Beale AFB. A comprehensive survey estimated that 1,089 USTs were located at Beale AFB. Approximately 95 percent of the UST locations have received regulatory closure, leaving 66 UST locations scheduled for additional remedial actions. The remaining locations have active bioventing systems, ongoing groundwater monitoring, access difficulties, or cannot be located. Petroleum hydrocarbons and volatile organic compounds (VOC) have been detected in the soil and groundwater (Beale AFB 2007). USTs near the project location have been closed and have received regulatory concurrence.

Building 2145, identified as ERP site SS-39, is the site of former activities that included photo processing, painting, and fabrication. VOCs, including

trichloroethylene (TCE) and carbon tetrachloride, have been detected in the groundwater that runs under the proposed development site. Treatment systems and monitoring wells are currently in place to address the contamination and monitor the extent of the groundwater plume. Three monitoring wells are adjacent to the proposed development site (see Figure 2-1).

3.2.2 Storage Tanks

USTs are subject to federal regulations within RCRA, 42 U.S.C. 6991 and U.S. EPA implementing regulations 40 CFR 280. These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. Air Force Instruction (AFI) 32-7044, *Storage Tank Compliance*, implements AFPD 32-70 and identifies compliance requirements for USTs, aboveground storage tanks (ASTs), and associated piping that store petroleum products and hazardous substances.

An inventory of ASTs and USTs is maintained at Beale AFB and includes the location, contents, capacity, containment measures, status, and installation dates (U.S. Air Force, 2011a).

Tanks in and around the project area include several tanks associated with emergency generators. These tanks are double-walled, self-contained tanks within the generator housing.

3.3 NATURAL ENVIRONMENT

This section describes the natural resources within the affected environment of the project area: geology and soils, water resources, air quality, biological resources, and cultural resources.

3.3.1 Geology and Soils

The ROI for geology and soils is localized and limited to the Proposed Action project area.

3.3.1.1 Soils

The soil map unit indicated by the Yuba County soil survey found on the Proposed Action project area is the Redding-Corning complex.

Redding-Corning Complex

The Redding-Corning complex consists of soil series Redding and Corning (Table 3-1). Both series are gravelly loam soils found on fan terraces. These soils form from mixed alluvium, have a very low water-holding capacity and very slow to slow permeability, and are flat to gently sloping (0 to 3 percent). The Redding soil series in Yuba County is gravelly loam over gravelly clay loam starting at approximately 6 inches, to clay at 19 inches, to a duripan from 20 to 40 inches. The Redding soils are moderately deep to duripan, moderately well drained soil. The Corning soil series in Yuba County is gravelly loam over

Table 3-1. Properties of Soils Mapped at the Proposed Development Site

| Mapping Unit | Texture and Slope | Farmland Classification | Construction Limitations |
|-------------------------|---|-------------------------|---|
| Redding-Corning complex | Redding, gravelly loam, 0 to 3 percent slopes; Corning, gravelly loam 2 to 3 percent slopes | Not prime farmland soil | Limited for building construction due to shrink-swell potential |

Source: NRCS, 2013.

gravelly clay starting at 24 inches and no restrictive layer. The Corning soil consists of very deep, well-drained soil. They are not considered prime farmland.

The Redding-Corning complex is considered predominantly nonhydric by the Natural Resource Conservation Service (NRCS). These soil series are designated as predominantly nonhydric because up to 33 percent of the map unit is comprised of hydric soil. Hydric soils develop in areas that are frequently inundated or saturated for a long or very long duration (i.e., flooding ranges from 7 days to 1 month following a single storm) during the growing season. The primary limitation to development on this soil, due to a high clay content and an underlying hardpan, is to limit the construction period to the dry season, May 1 or June 1 to November 1, weather dependent.

3.3.1.2 Geology

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

Surficial geologic features surrounding Beale AFB primarily consist of unconsolidated sedimentary, metasedimentary, and igneous (volcanic) materials that have eroded off nearby mountains or have been deposited by streams and storm events.

Four geomorphic units (i.e., surface features) associated with the Great Valley Province cover most of Beale AFB: river floodplains and channels of the Modesto Formation, low alluvial plains and fans of the Riverbank Formation, and dissected uplands of the Mehrten and Laguna formations. A fifth geomorphic unit, metavolcanic rock, occurs in the eastern portion of the base and is characteristic of the Sierra Nevada foothills (U.S. Air Force, 2011a). The geomorphic unit on the Proposed Action project area is the Laguna Formation.

Dissected uplands of the Laguna Formation are located along the eastern edge of the Central Valley and make up most of the central portion of the base. This

unit ranges from gently rolling land to dissected hills with elevations of 100 to 300 feet above mean sea level (U.S. Air Force, 2011a).

3.3.2 Water Resources

Water resources comprise those aspects of the hydrologic cycle that may be affected by the proposed development. These include surface water, groundwater, and floodplains. In general, the ROI for water resources includes the project area and those areas within the same watershed or groundwater aquifer that may be affected by changes in direction, quantity, or quality of water resources.

3.3.2.1 Surface Water

The primary surface water system in the region is the Lower Yuba River Deer Creek Confluence to the north and Camp Far West Reservoir to the southeast. The regional surface drainage direction is to the southwest.

The principal surface drainage system for the project area is Hutchinson Creek. Runoff from Hutchinson Creek ultimately flows southwest into the Feather River.

Other surface water features at the base include Reeds Creek, Dry Creek, and 20 artificially created impoundments (i.e., lakes and stock ponds) covering approximately 238 acres. Reeds Creek flows through the northwest corner of the base and ultimately into the Feather River. Dry Creek flows through the southeast corner of the base and ultimately into the Bear River.

Waters of the United States are defined within the Clean Water Act (CWA), as amended, and are regulated by the U.S. EPA and the U.S. Army Corps of Engineers (USACE). The CWA mandates the National Pollutant Discharge Elimination System (NPDES) program, which requires a permit for any discharge of pollutants into waters of the United States. The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The permit mandates use of best management practices (BMPs) to ensure that soil disturbed during construction activities does not pollute nearby water bodies.

Jurisdictional Waters of the U.S. Those areas that convey water, exhibit an “ordinary high water mark,” and do not meet the three-parameter criteria for wetlands might be nonwetland waters of the United States. An ordinary high water mark is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris (33 CFR 328.3). This range of jurisdiction is typically regarded as the limit of the two-year storm (a 50 percent probability that the line will be reached during the rainy season) (Foothill, 2004).

USACE recognizes three distinct types of drainage features: ephemeral drainages, intermittent drainages, and perennial drainages. Ephemeral

drainages are fed primarily by stormwater. They convey flows during and immediately after storm events, but they might stop flowing or begin to dry if the interval between storms is long enough. Intermittent drainages are fed primarily by groundwater and supplemented by stormwater. After the onset of rains they should have persistent flows through and past the end of the rainy season. Eventually, depending on the availability of groundwater, these features become dry. Perennial drainages are fed predominantly by groundwater and supplemented by stormwater. Flows in these systems persist throughout the year (Foothill, 2004).

The proposed parking lot site has a small potentially jurisdictional seasonal drainage that runs east to west (Figure 3-1). It receives water from the B Street roadside drainage; however, this drainage does not have an outlet at C Street. Because this area has poor drainage, a seasonal wetland has been formed at the C Street end of the drainage. This drainage that crosses the project site also overflows in heavy rain events and feeds water to seasonal wetlands adjacent to the drainage.

3.3.2.2 Groundwater

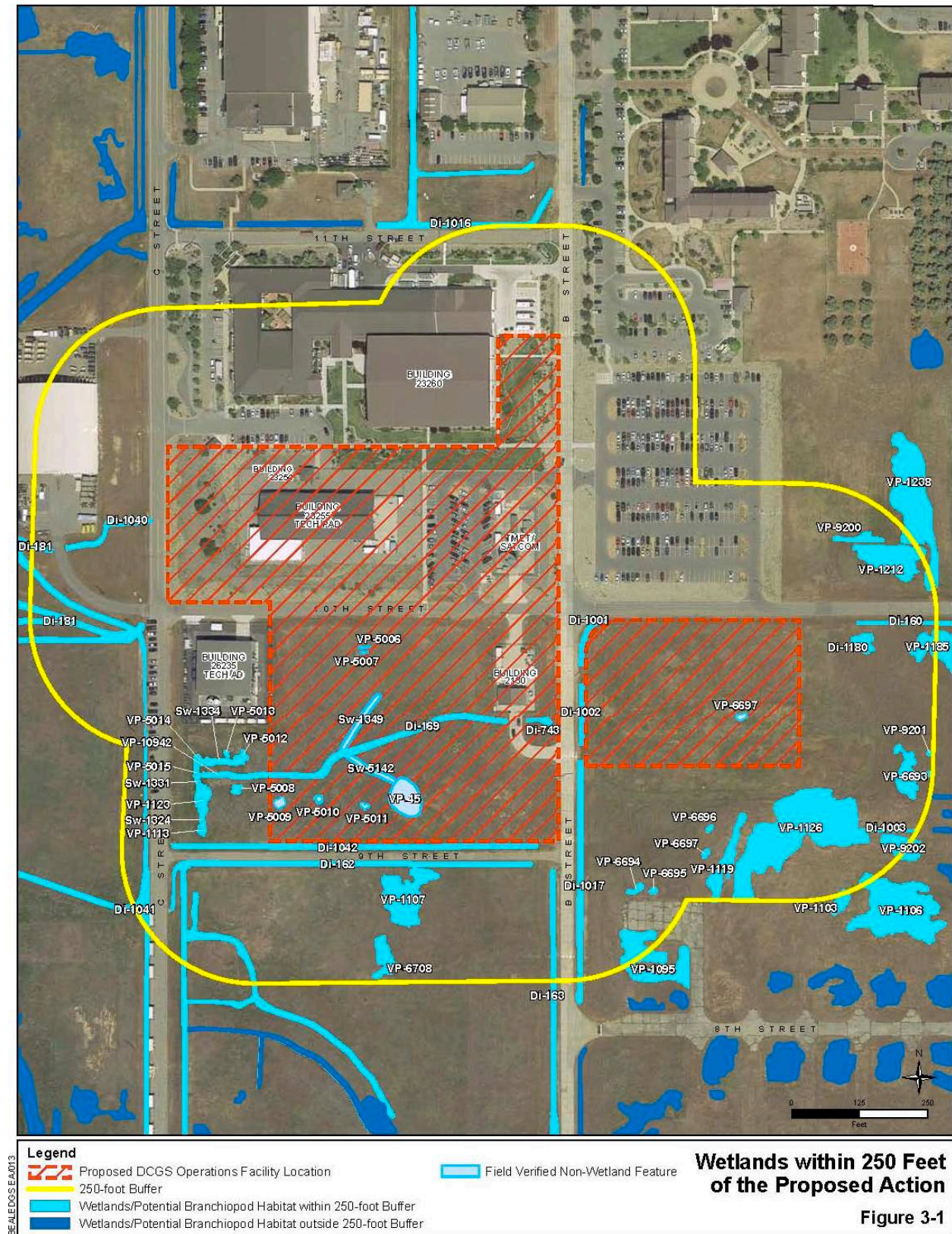
Groundwater for drinking purposes at Beale AFB occurs 300 to 500 feet below ground surface and is presumed to originate in unconfined aquifer material with local clay/silt lenses overlying the Central Valley groundwater basin. Groundwater in the northern portion of Beale AFB is recharged from the Yuba 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 (U.S. Air Force, 2011a). Groundwater in the central portion of Beale AFB contains higher levels of total dissolved solids and nitrates. Groundwater from the southern portion of Beale AFB, which receives its recharge from Dry Creek and Bear River, has a water quality between that of the northern and central portions of the installation.

Groundwater at Beale AFB is generally first encountered within about 4 to 100 feet below ground surface (bgs) at monitoring wells throughout the base (CH2M Hill, 2013). Groundwater has been impacted by former installation activities and is monitored and sampled under the ERP. Groundwater generally flows west to southwest across the installation.

Water for domestic use at Beale AFB is provided from seven water supply wells and one contingency well located to the west of the flightline area. Total water use at the installation varies from 2.5 to 6.0 million gallons per day (mgd). The wells have a total combined pumping capacity of 12.0 mgd (U.S. Air Force, 2011a).

3.3.2.3 Floodplains

Creeks at Beale AFB are surrounded by wide floodplain areas created by the occasional heavy rainfall that occurs in the region, impervious soil conditions, and lack of topographic relief. Various areas along major drainages at Beale AFB (Dry, Reeds, and Hutchinson creeks; and Best Slough) are within the



100-year floodplain. These floodplains flood periodically to varying degrees. Portions of the flightline, cantonment, military family housing, and riparian areas are within these floodplains (U.S. Air Force, 2011a). The proposed development area is not located within a 100-year floodplain.

3.3.3 Air Quality

Air quality in any given location is defined by the concentration of various pollutants in the atmosphere, generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The significance of a pollutant concentration is determined by comparing it to federal and/or State ambient air quality standards. The federal Clean Air Act (CAA), 42 U.S.C. Sections 7401-7671(q) provides that emissions sources must comply with the air quality standards and regulations that have been established by federal, State, and county regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations, and (2) the maximum allowable emissions from individual sources.

Criteria Pollutants

The U.S. EPA has established federal standards for the permissible levels of certain pollutants in the atmosphere. The National Ambient Air Quality Standards (NAAQS) have been established for seven criteria pollutants: ozone, nitrogen dioxide (NO_2), particulate matter equal to or less than 10 microns in diameter (PM_{10}), particulate matter equal to or less than 2.5 microns in diameter ($\text{PM}_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Table 3-2).

The State of California has also developed ambient air quality standards to regulate air pollution levels. Both federal and State air quality standards are shown in Table 3-2. Standards are not to be exceeded more than once per year, except for ozone and PM_{10} , which are not to be exceeded more than an average of one day per year.

The ROI consists of the airshed that Beale AFB is within, for purposes of air quality analysis. Beale AFB is situated in the Northern Sacramento Valley Air Basin (NSVAB) and the Feather River Air Quality Management District (FRAQMD) (U.S. Air Force, 2011a). U.S. EPA has classified the Yuba City – Marysville area where Beale AFB is located as in nonattainment for $\text{PM}_{2.5}$ and as in attainment for other criteria pollutants with respect to the NAAQS.

Clean Air Act General Conformity

Title 40 CFR 51 Part 93, General Conformity, requires federal actions to conform to any State Implementation Plan approved or promulgated under Section 110 of the CAA. An air conformity applicability analysis and possibly a formal air conformity determination are required for federal actions in nonattainment or maintenance areas. The general conformity rule applicability analysis applies to the Proposed Action since the project is located within Yuba City–Marysville $\text{PM}_{2.5}$ nonattainment area. The rules specify *de minimis* emission levels by

Table 3-2. Ambient Air Quality Standards Applicable in California

| Pollutant | California Standards ^{(a)(b)} | | Federal Standards | | Standard Type ^{(c)(d)} |
|---|--|--------------------------|-------------------|----------------------------|---------------------------------|
| Carbon Monoxide (CO) | | | | | |
| 8-hour Average | 9 ppm | (10 mg/m ³) | 9 ppm | (10 mg/m ³) | Primary |
| 1-hour Average | 20 ppm | (23 mg/m ³) | 35 ppm | (40 mg/m ³) | Primary |
| Nitrogen Dioxide (NO ₂) | | | | | |
| Annual Arithmetic Mean | 0.030 ppm | (57 µg/m ³) | 0.053 ppm | (100 µg/m ³) | Primary & |
| 1-hour Average | 0.18 ppm | (339 µg/m ³) | 0.1 ppm | (188 µg/m ³) | Secondary |
| Ozone | | | | | |
| 8-hour Average | 0.070 ppm | (137 µg/m ³) | 0.075 ppm | (147 µg/m ³) | Primary & |
| 1-hour Average | 0.09 ppm | (180 µg/m ³) | NA | NA | Secondary |
| Lead | | | | | |
| 30 Day Average | NA | 1.5 µg/m ³ | NA | NA | Primary & |
| Rolling 3-Month Average | NA | NA | NA | 0.15 µg/m ³ | Secondary |
| Particulate ≤10 micrometers (PM ₁₀) | | | | | |
| Annual Geometric Mean | NA | 20 µg/m ³ | NA | NA | Primary & |
| 24-hour Average | NA | 50 µg/m ³ | NA | 150 µg/m ³ | Secondary |
| Particulate ≤2.5 micrometers (PM _{2.5}) | | | | | |
| Annual Arithmetic Mean | NA | 12 µg/m ³ | NA | 12 µg/m ³ | Primary |
| 24-hour Average | NA | NA | NA | 15 µg/m ³ | Secondary |
| | | | | 35 µg/m ³ | Primary & |
| | | | | | Secondary |
| Sulfur Dioxide (SO ₂) | | | | | |
| 24-hour Average | 0.04 ppm | (105 µg/m ³) | NA | NA | Primary |
| 3-hour Average | NA | NA | 0.5 ppm | (1,300 µg/m ³) | Secondary |
| 1-hour Average | 0.25 ppm | (655 µg/m ³) | 0.075 ppm | (196 µg/m ³) | Primary |

Notes:

- (a) Standards, other than for ozone and those based upon annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
- (b) Concentrations are expressed first in units in which they were promulgated. Equivalent units are provided in the second column.
- (c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by EPA.
- (d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after EPA approves the implementation plan.

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

PM_{2.5} = particulate matter equal to or less than 2.5 microns in diameter

PM₁₀ = particulate matter equal to or less than 10 microns in diameter

ppm = parts per million

pollutant to determine the applicability of conformity requirements for a project. The corresponding PM_{2.5} *de minimis* level is 100 tons per year (tpy).

According to 40 CFR 81.305(c), federal conformity determinations for the 1-hour ozone standard no longer apply to Yuba County as the 1-hour ozone NAAQS was revoked and the area was not designated as nonattainment for either the 1997 or 2008 ozone NAAQS (Spaethe, 2014).

Hazardous Pollutants

In addition to the criteria pollutants discussed above, non-criteria toxic pollutants, called hazardous pollutants (HAPs), are also regulated under the CAA. U.S. EPA has identified a total of 187 HAPs that are known or suspected to cause health effects in small doses. HAPs emitted by a wide range of man-made and naturally occurring sources including combustion mobile and stationary sources. The CAA Section 112 established a program for controlling emissions for HAPs. Under Section 112, emission standards have been developed for sources that emit any of the 189 chemical compounds listed in the Act. Initially, Section 112 will affect major industrial sources of HAPs. A major source is any facility that emits 10 tons or more per year of any HAPs or 25 tons of any combination of HAPs. These sources of emissions must be identified and are required to obtain an operating permit and comply with federally mandated control technology (i.e., maximum achievable control technology) based on emission standards and other conditions.

Greenhouse Gas Emissions and Climate

Greenhouse gases (GHGs) are compounds that contribute to the greenhouse effect. The greenhouse effect is a natural phenomenon where gases trap heat within the surface-troposphere (lowest portion of the earth's atmosphere) system, causing heating at the surface of the earth. The primary long-lived GHGs directly emitted by human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

The heating effect from these gases is considered the probable cause of the global warming observed over the last 50 years (U.S. EPA, 2009a). Global warming and climate change can affect many aspects of the environment. The U.S. EPA Administrator has recognized potential risks to public health or welfare and signed an endangerment finding regarding GHGs under Section 202(a) of the Clean Air Act (CAA) (U.S. EPA, 2009a), which finds that the current and projected concentrations of the six key well-mixed GHGs – CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ - in the atmosphere threaten the public health and welfare of current and future generations. To estimate global warming potential (GWP), all GWPs are expressed relative to a reference gas, CO₂, which is assigned a GWP equal to 1. All six GHGs are multiplied by their GWP and the results are added to calculate the total equivalent emissions of CO₂ (CO₂e). However, the dominant GHG gas emitted is CO₂, mostly from fossil fuel combustion (85.4%) (U.S. EPA, 2009b). This EA considers CO₂ as the representative greenhouse gas emission.

This EA follows the Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas issued by the CEQ (Council on Environmental Quality, 2010). The potential effects of proposed GHG emissions are by nature global and cumulative impacts, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. As such, this EA predicts CO₂ levels as appropriate for disclosure purposes.

Existing Conditions

The California Air Resources Board (CARB) regulates air quality for the State of California. Beale AFB is regulated by the FRAQMD. Beale AFB has been determined by the U.S.EPA to be a minor source for criteria pollutants and HAPs, and therefore not subject to Title V permitting (U.S. Air Force, 2011a). Various sources on-installation emit criteria pollutants and HAPs, including generators, boilers, water heaters, fuel storage tanks, gasoline service stations, surface coating/paint booths, and miscellaneous chemical usage.

For attainment pollutants in an attainment area, Yuba County is regulated under the FRAQMD's Rule 10-10, Prevention of Significant Deterioration (PSD) program authorized by the CAA Part C Sections 160-169. PSD areas require that owners and/or operators of new or modified stationary sources obtain a PSD permit prior to construction of a major source situated in attainment or unclassified areas. A major source is defined by PSD regulations as being a specific type of stationary source listed by U.S. EPA that has a potential of emitting 100 tons per year (tpy) or more of a regulated pollutant. A source not listed by U.S. EPA may also be considered major if it has the potential to emit 250 tpy or more of a regulated pollutant. Because no new major emission sources would be associated with the new facility, PSD permitting criteria would not be applicable to the Proposed Action.

3.3.4 Biological Resources

Biological resources include native or naturalized plants and animals and the habitats (i.e., wetlands and grasslands) in which they exist. For discussion purposes, these are divided into vegetation, wildlife, threatened and endangered species, and sensitive habitats. The ROI for discussion of biological resources and potential impacts on these resources includes the on-site (where construction and demolition is proposed) and adjacent properties. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS).

The following discussion is based on information presented in the Integrated Natural Resources Management Plan (INRMP) and draft Special Area Management Plan (SAMP) EA and Programmatic Biological Opinion for Beale AFB and information collected during the site visit to Beale AFB in July 2013 (U.S. Air Force, 2012; U.S. Air Force, 2010a; USFWS, 2012; AECOM, 2013). The INRMP and SAMP were developed as tools to manage the natural resources found on the base.

The ROI for this project occurs within a portion of Beale AFB designated in the SAMP as a Low Integrity/Developed area (U.S. Air Force, 2010a). Low Integrity/Developed areas include low quality habitat, aquatic resources, and habitat of lesser value for threatened and endangered species due to area development or proximity to developed areas (U.S. Air Force, 2012).

3.3.4.1 Vegetation

The vegetation within the ROI is comprised of landscaped grass areas and ornamental trees and shrubs. The area is maintained using weed control, landscaping, and mowing.

Vegetation within and adjacent to the proposed new parking lot includes annual grassland and vernal pool species. Annual grassland is the most common type of vegetation at Beale AFB. Most grasslands at Beale AFB are comprised mainly of nonnative species, including ripgut brome (*Bromus diandrus*), ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead (*Taeniatherum caput-medusae*), annual fescue (*Festuca* spp.), and foxtail barley (*Hordeum jubatum*). Three species of native perennial bunch grasses [purple needlegrass (*Nassella pulchra*), California onion-grass (*Melica californica*), and giant squirrel tail (*Elymus multisetus*)] and two native annual grasses [common three-awn (*Aristida oligantha*) and tall fescue (*Festuca arundinaceae*)] are found in varying densities in pastures and roadsides throughout the base. Intermixed with these grasses is a diverse assemblage of native and introduced forb species, including dove weed (*Croton setigerus*), sheep sorrel (*Rumex acetosella*), clover (*Trifolium* spp.), fiddleneck (*Amsinckia* spp.), yellow owl's-clover (*Castilleja campestris*), popcorn flower (*Cryptantha* spp.), poppy (*Eschscholzia* spp.), brodiaea (*Brodiaea* spp.), navarretia (*Navarretia* spp.), mariposa lily (*Calochortus* spp.), lupine (*Lupinus* spp.), vetch (*Astragalus* spp.), blue-eyed grass (*Sisyrinchium* spp.), field pink (*Dianthus* spp.), filaree (*Erodium* spp.), field mustard (*Brassica* spp.), and spikeweed (*Centromadia fitchii*).

The dominant species in typical vernal pools at Beale AFB are coyote thistle (*Eryngium vaseyi*), California goldfields (*Lasthenia californica*), Fremont goldfields (*L. fremontii*), white-flowered navarretia (*Navarretia leucocephala*), bractless hedge-hyssop (*Gratiola ebracteata*), vernal buttercup (*Ranunculus bonariensis* var. *trisepalus*), annual hairgrass (*Deschampsia danthonioides*), yellow owl's-clover, Sacramento mesa mint (*Pogogyne zizyphoroides*), and dwarf woolly marbles (*Psilocarphus* spp.).

3.3.4.2 Wildlife

Annual grasslands provide habitat for several species of reptiles, including gopher snake (*Pituophis menamoleucus*), western yellow-bellied racer (*Coluber constrictor mormon*), western rattlesnake (*Crotalus viridis*), common king snake (*Lampropeltis getula*), southern alligator lizard (*Elgaria multicarinata*), western fence lizard (*Sceloporus occidentalis*), and western skink (*Eumeces skiltonianus*). Annual grasslands also provide nesting and breeding habitat for a variety of grassland birds, as well as foraging habitat for many bird species that breed in other habitats. Open annual grasslands are particularly important for wintering raptors such as the rough-legged hawk (*Bufo lagopus*).

Bird species observed in the annual grassland during field surveys include the western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes grammacus*), savannah sparrow (*Passerculus sandwichensis*), horned lark (*Eremophila alpestris*), and Brewer's blackbird

(*Euphagus cyanocephalus*). Wild turkeys (*Meleagris gallopavo*) have also been reported using the annual grasslands at Beale AFB. Birds of special interest that have been observed foraging in the annual grasslands at Beale AFB are the red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*). Nocturnal raptors, including great horned owl (*Bubo virginianus*) and barn owl (*Tyto alba*), will also forage in the grasslands.

Mammals observed (or of which signs were detected) in the annual grasslands at Beale AFB include black-tailed hare (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), California ground squirrel (*Spermophilus beecheyi*), western gray squirrel (*Sciurus griscus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and Virginia opossum (*Didelphis virginiana*).

During the dry season, vernal pools are similar in their wildlife species composition to annual grasslands. During the wet season, from late fall to early spring, vernal pools contain crustaceans including vernal pool tadpole shrimp (*Lepidurus packardii*) and vernal pool fairy shrimp (*Branchinecta lynchi*). Amphibians such as the Pacific chorus frog (*Pseudacris regilla*) and western toad (*Anaxyrus boreas*) also use vernal pools and other seasonal wetlands while they are inundated. Garter snakes, raccoons, and other predators feed on these amphibians.

This wetland habitat supports a higher diversity of bird species. Concentrations of several hundred ducks have been observed using seasonal wetlands in the northwestern corner of Beale AFB. Mallard (*Anas platyrhynchos*), northern pintail (*A. acuta*), and American widgeon (*A. americana*) are the most common species. Concentrations of northern shoveler (*A. clypeata*), gadwall (*A. strepera*), and tundra swan (*Cygnus columbianus*) have also been observed. Other water birds that use seasonal wetlands include American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), long-billed curlew (*Numenius americanus*), greater yellowlegs (*Tringa melanoleuca*), long-billed dowitcher (*Limnodromus scolopaceus*), common snipe (*Gallinago gallinago*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), great blue heron (*Ardea herodias*), green-winged teal (*Anas crecca*), cinnamon teal (*A. cyanoptera*), Canada goose (*Branta canadensis*), and killdeer (*Charadrius vociferus*). Many other wildlife species feed in or adjacent to wetlands; these species include western kingbirds, cliff swallows (*Hirundo pyrrhonota*), barn swallows (*H. rustica*), red-winged blackbirds (*Agelaius phoeniceus*), and common kingsnakes.

3.3.4.3 Special Status Species

Vegetation

Sixteen plant species formally protected under federal or State law are found in Yuba County (Table 3-3). Only one of these species has been observed on Beale AFB, Greene's legumere (*Legenere limosa*), but it is not likely to occur within the proposed development area.

Table 3-3. Federal and State Listed and Special Status Plant Species
Page 1 of 2

| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|---|-------------------------------|---|--|
| Hoover's spurge <i>Chamaesyce hooveri</i> | FT/— | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Mosquin's clarkia <i>Clarkia mosquinii</i> | —/1B.1 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Adobe lily <i>Fritillaria pluriflora</i> | —/1B.2 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i> | —/SE and 1B.2 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i> | —/1B.2 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Red Bluff dwarf rush <i>Juncus leiospermus</i> var. <i>leiospermus</i> | —/1B.1 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i> | —/1B.2 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Greene's legenere <i>Legenere limosa</i> | —/1B.1 | Known to occur within Beale AFB | Not likely to occur within proposed development area |
| Veiny monardella <i>Monardella venosa</i> | —/1B.1 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Hairy Orcutt grass <i>Orcuttia pilosa</i> | FE/SE | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Slender Orcutt grass <i>Orcuttia tenuis</i> | FT/SE | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Sacramento Orcutt grass <i>Orcuttia viscida</i> | FE/SE | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Ahart's paronychia <i>Paronychia ahartii</i> | —/1B.1 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Sanford's arrowhead <i>Sagittaria sanfordii</i> | —/1B.2 | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Greene's tuctoria <i>Tuctoria greenei</i> | FE/— | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |

Table 3-3. Federal and State Listed and Special Status Plant Species**Page 2 of 2**

| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|---|-------------------------------|---|--|
| Hartweg's golden sunburst <i>Pseudobahia bahifolia</i> | FE/SE | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |

Source: USFWS 2012

Listing Explanation:

Federal (ESA):

FE Federally Endangered

FT Federally Threatened

— No Federal Listing

State (CESA):

SE State Endangered

— No State Listing

California Rare Plant Rank:

1B.1 Plants considered rare, threatened, or endangered in California and elsewhere

1B.2 Plants considered rare, threatened, or endangered in California, but more common elsewhere

Wildlife

Forty wildlife species formally protected under federal or State law are found in Yuba County (Table 3-4). Three of these species are found near the proposed development area. Two of the species occur in vernal pools, the federally listed as threatened vernal pool fairy shrimp and the federally listed as endangered vernal pool tadpole shrimp. These species were found approximately 60 and 150 feet to the west of the footprint of the proposed parking lot during dry-season shrimp sampling for Beale AFB in November 2006 (EM Assist, 2006). The burrowing owl (*Athene cunicularia*) is a species of special concern in California by the CDFW and has occurred in the vicinity of the proposed development area, near the footprint of the proposed parking lot. Burrowing owls have been seen at the project location prior to 2007; but no owls and no sign of burrowing owl use were observed during the special status species surveys for Beale AFB on April 21, 2010 survey (AECOM, 2011a). In addition, many bird species present on the project site (including those identified above) are subject to regulation under the Migratory Bird Treaty Act.

3.3.4.4 Sensitive Habitats

Sensitive habitats are those areas considered for protection due to their ecological value. They include wetlands, critical habitat for protected species, plant communities of limited or unusual distribution, and important seasonal use areas for wildlife. Wetlands, in the form of vernal pools, are the only sensitive habitats known to occur within the proposed development area (Figure 3-2).

Vernal pools on Beale AFB are classified as Northern Hardpan Vernal Pools (Sawyer and Keeler-Wolf, 1995). Northern Hardpan Vernal Pools are an aggregate vegetation community that includes vernal pools, vernal swale wetlands, and depressional seasonal wetlands. Vernal pools are small, shallow,

Table 3-4. Federal and State Listed and Special Status Wildlife Species

Page 1 of 4

| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|--|-------------------------------|---|--|
| Invertebrates | | | |
| conservancy fairy shrimp <i>Branchinecta conservatio</i> | FE/— | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| longhorn fairy shrimp <i>Branchinecta longiantenna</i> | FE/— | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| vernal pool fairy shrimp <i>Branchinecta lynchi</i> | FT/— | Known to occur within Beale AFB | Likely to occur within proposed development area |
| valley elderberry longhorn beetle (VELB) <i>Desmocerus californicus dimorphus</i> | FT/— | Known to occur within Beale AFB | Not likely to occur within proposed development area |
| vernal pool tadpole shrimp <i>Lepidurus packardii</i> | FE/— | Known to occur within Beale AFB | Likely to occur within proposed development area |
| Fish | | | |
| Central Valley steelhead <i>Oncorhynchus mykiss</i> | FT/— | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Amphibians | | | |
| California tiger salamander <i>Ambystoma californiense</i> | FT/ SCE | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Foothill yellow-legged frog <i>Rana boylei</i> | —/SSC | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| California red-legged frog (CRLF) <i>Rana draytonii</i> | FT/— | Occur regionally but not likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Western spadefoot <i>Spea hammondi</i> | —/SSC | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Reptiles | | | |
| Northwestern pond turtle <i>Actinemys marmorata marmorata</i> | —/SSC | Known to occur within Beale AFB | Not likely to occur within proposed development area |
| California horned lizard <i>Phrynosoma coronatum frontale</i> | —/SSC | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| giant garter snake (GGS) <i>Thamnophis gigas</i> | FT/ST | Likely to occur within Beale AFB | Not likely to occur within proposed development area |

Table 3-4. Federal and State Listed and Special Status Wildlife Species

Page 2 of 4

| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|--|-------------------------------|---|---|
| Birds | | | |
| Cooper's hawk <i>Accipiter cooperii</i> | —/CFWC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Sharp-shinned hawk <i>Accipiter striatus</i> | —/CFWC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Tricolored blackbird <i>Agelaius tricolor</i> | —/SSC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Golden eagle <i>Aquila chrysaetos</i> | —/FP and CFWC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Short-eared owl <i>Asio flammeus</i> | —/SSC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Western burrowing owl <i>Athene cunicularia hypugea</i> | —/SSC | Known to occur within Beale AFB | Likely to occur within proposed development area |
| Ferruginous hawk <i>Buteo regalis</i> | —/CFWC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Swainson's hawk <i>Buteo swainsoni</i> | —/ST and CFWC | Known to occur within Beale AFB during the summer | Not likely to nest but may forage within the proposed development area |
| Northern harrier <i>Circus cyaneus</i> | —/SSC and CFWC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Yellow warbler <i>Dendroica petechia</i> | —/SSC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| White-tailed kite <i>Elanus caeruleus</i> | —/FP and CFWC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |

Table 3-4. Federal and State Listed and Special Status Wildlife Species

Page 3 of 4

| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|---|-------------------------------|---|---|
| Prairie falcon <i>Falco mexicanus</i> | —/CFWC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| American peregrine falcon <i>Falco peregrinus anatum</i> | FD/SD, FP and CFWC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Greater sandhill crane <i>Grus canadensis tabida</i> | —/ST, FP | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Bald eagle <i>Haliaeetus leucocephalus</i> | FD/SE, FP, and CFWC | Known to occur within Beale AFB during the winter | Not likely to nest but may forage within the proposed development area |
| Yellow-breasted chat <i>Icteria virens</i> | —/SSC | Known to occur within Beale AFB during the summer migration | Not likely to nest but may forage within the proposed development area |
| Western least bittern <i>Ixobrychus exilis hesperis</i> | —/SSC | Likely to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Loggerhead shrike <i>Lanius ludovicianus</i> | —/SSC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| California black rail <i>Laterallus jamaicensis coturniculus</i> | —/ST, FP | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Osprey <i>Pandion haliaetus</i> | —/CFWC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| American white pelican <i>Pelecanus erythrorhynchos</i> | —/SSC | Known to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Purple martin <i>Progne subis</i> | —/SSC | Likely to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |

Table 3-4. Federal and State Listed and Special Status Wildlife Species

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| Common and Scientific Name | Legal Status Federal/State | Occurrence Within Beale AFB | Occurrence Within Project Area |
|---|-------------------------------|-------------------------------------|---|
| Bank swallow <i>Riparia riparia</i> | —/ST | Likely to occur within Beale AFB | Not likely to nest but may forage within the proposed development area |
| Mammals | | | |
| Pallid bat <i>Antrozous pallidus</i> | —/SSC | Known to occur within Beale AFB | Not likely to occur within proposed development area |
| Ringtail <i>Bassariscus astutus</i> | —/FP | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Townsend's big-eared bat <i>Corynorhinus townsendii</i> | —/SSC | Likely to occur within Beale AFB | Not likely to occur within proposed development area |
| Marysville kangaroo rat <i>Dipodomys californicus eximus</i> | —/SSC | Likely to occur within Beale AFB | Not likely to occur within proposed development area |

Source: USFWS 2012

Status Explanations:

Federal (ESA):

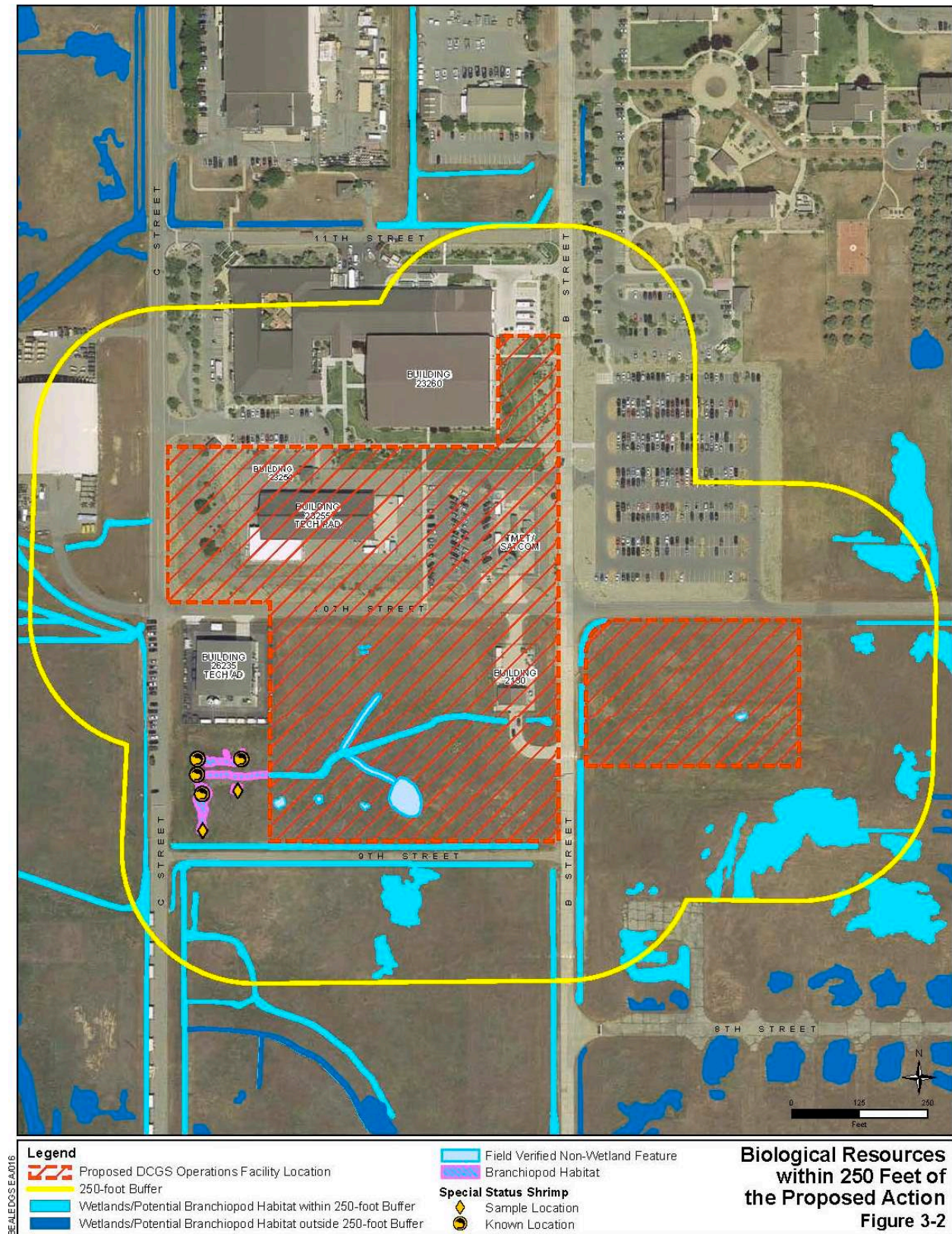
FE Federally Endangered
FT Federally Threatened
FD Federally Delisted
— No Federal Listing

State (CESA and CDFW):

SE State Endangered (CESA)
ST State Threatened (CESA)
FP Fully Protected (CDFW)
SSC Species of Special Concern (CDFW)
CFWC Nesting Raptors protected under the California Fish and Wildlife Code Section 3503.5
— No State Listing

seasonal bodies of water formed by precipitation accumulating in depressions over an impervious claypan, hardpan, or bedrock bottom. Vernal pools provide unique habitat for plants that germinate as aquatic or semiaquatic plants but that must adapt to terrestrial life and a dryland environment as the pool dries.

Beale AFB has developed a Special Area Management Plan (SAMP) for the base. It classifies portions of the base in terms of the biological sensitivity (Low Integrity/Developed, Low Integrity/Undeveloped, High Integrity/Conservation) in order to guide management and development strategies in those areas. The USFWS issued a Biological Opinion (USFWS, 2012) for the SAMP that aids in the assessment of project impacts and prescribes compensation measures based on the areas of biological sensitivity and the direct and indirect impacts of the project. The proposed development area is located within a Low Integrity/Developed Area of Beale AFB. These areas include aquatic resources with generally low hydrologic, water quality, and habitat integrity; with less habitat value for threatened or endangered species; and low wildlife connectivity value.



3.3.5 Cultural Resources

Cultural resources are defined as prehistoric or historic archaeological sites, buildings, structures, districts, artifacts, or other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. For this discussion, cultural resources have been divided into prehistoric and historic archaeological resources, historic buildings and structures, and traditional cultural resources (e.g., sacred or ceremonial sites).

For the purposes of this analysis, the term ROI is synonymous with the Area of Potential Effect (APE) as defined in 36 CFR Part 800.16 as the geographical area or areas within which an undertaking may directly or indirectly cause alteration in the character or use of historic properties. The APE may be different for different kinds of effects caused by the undertaking. The ROI for the analysis of cultural resources within this EA includes any areas where ground disturbance or modification to historical-era structures would occur as a result of the Proposed Action.

3.3.5.1 Prehistoric and Historical Archaeological Resources

The following prehistory and history of Beale AFB has been excerpted from the Beale AFB Integrated Cultural Resource Management Plan (ICRMP) (U.S. Air Force, 2013b).

3.3.5.2 Prehistoric Period

Four prehistoric periods have been defined for the Beale AFB region, which shares many similarities with the adjacent San Joaquin Valley, Sacramento Valley, San Francisco Bay, and Sierra Nevada foothill regions. From the earliest to latest, the prehistoric periods are these: Paleo-Indian (10,000 B.C. to 5,000 B.C.), Windmill Pattern (ca. 3,000 B.C. to ca. 1,000 B.C.), Berkeley Pattern (ca. 1,000 B.C. to A.D. 500), and Augustine Pattern (ca. A.D. 500 to A.D. 1880). The region surrounding Beale AFB exhibits evidence of light occupation during all of the defined prehistoric phases. The prevailing trend in the prehistory of the region is from small, highly mobile hunter-gatherer groups to larger, more sedentary communities focused on fishing, hunting waterfowl, and collecting acorns. A pronounced preference for wetland and riverine environments is evident in all periods.

Beale AFB is located in an area associated with the ethnographic Nisenan, a Native American people who have been the subject of many published studies and archaeological surveys. The traditional territory of the Nisenan included parts of western Sacramento Valley, Yuba River to the north, drainages of the Bear, American and Cosumnes rivers to the south, and valleys and foothills stretching east towards the Sierra Nevada. The archaeological remains associated with the Nisenan are generally subsumed under the Augustine Pattern. This period was characterized by an increased reliance on fishing, hunting waterfowl, and gathering acorns, coincident with a rapidly growing population (Moratto, 1984:211-214). Most of the flaked stone implements were

made of local chert, basalt, metavolcanic rock, petrified wood, chalcedony, and greenstone. Obsidian was a rare, exotic material in this region, imported through trade networks from the North Coast Ranges. Obsidian from the Napa source in the North Coast Ranges appears to have been dominant (Nilsson et al., 1995:41).

3.3.5.3 Historical Period

Although the sustained European exploration of California began in the early 1700s, few non-Native American people visited the region surrounding Beale AFB until the end of the century. The earliest European explorers to the area were José Canizares and Gabriel Moraga who led overland expeditions in 1776 and 1808, respectively. Through the 1820s and 1840s, fur trappers from the Hudson's Bay Company, including Jedediah Smith, exploited the rich rivers and valleys of the region. Euro-American settlement of the area around the present-day community of Marysville began around 1841, when Swiss immigrant John Sutter cobbled together a huge domain consisting of several Mexican land grants that included much of Yuba County.

James Marshall's discovery of gold at the Nisenan settlement of *Culloma* (present-day Coloma, California) in 1848 sparked a flurry of interest among prospectors seeking wealth and fortune. The Yuba and Bear rivers and their tributaries were quickly overwhelmed with prospectors who overran Nisenan territory, destroying villages and persecuting the local Nisenan people. Eventually, the town of Marysville became the major river port along the Yuba and Feather rivers serving gold mining activities to the east. Additionally, roads were established to allow miners to transport supplies, often hauled by mule train, into the lower hills and valleys. A daily stage line was established that ultimately linked Sacramento, Nevada City, Marysville, and Smartsville. More than 20 historic trails have been documented within the Beale AFB property. The trails likely connected to the local communities of Erle, Wheatland, Waldo, and Reed's Station. Gold prospecting in the immediate area of Beale AFB was relatively minor, but some prospecting activity is evident as mounds of tailings and remains of small dams along waterways.

Although gold mining was never profitable in the Beale AFB area, stock-raising and farming were quite productive. William Johnson and John Sutter began stock-raising in the area during the 1840s, benefiting from the influx of miners and prospectors who required food. Many early area ranchers, including Henry Reed, J.B. Watson, P.L. Hutchinson, Orlo Whiteside, and Fred and Samuel Kuster, held large tracts in the southern portion of present-day Beale AFB. Following on the success of ranching, farming began in the area in the 1850s, when a regional wheat-growing industry developed throughout the Central Valley. By the 1860s, in addition to wheat, farmers produced grapes, apricots, prunes, plums, figs, olives, walnuts, tomatoes, corn, and potatoes.

3.3.5.4 Military History

With the onset of World War II, the United States government sought to expand its training and strategic bases. In 1942, the War Department began work on a

new training base near the mining town of Marysville to take advantage of the nearby facilities and labor force. This new base, known as Camp Beale, was established 14 miles east of Marysville and originally served as a training base for the Army's 13th Armored Division and the 81st and 96th Infantry Divisions. The camp served as a personnel replacement depot, an overseas replacement depot, and an induction center during the war. In addition, Camp Beale housed a prisoner-of-war camp for captured German soldiers. At the end of World War II, Camp Beale was closed and was declared surplus by the War Department in 1947. After the decommissioning and sale of most of Camp Beale's buildings and facilities, the Air Force expressed an interest in the property. On November 10, 1948, Camp Beale was transferred to the Air Force, which used the installation to train bombardiers and navigators.

Over the next half-century, the renamed Beale AFB was under numerous commands and served as a bombing and gunner range, a training site for aviation engineers, a research center on "blast effects," the housing complex for Titan Missiles, and the primary base for the SR-71 "Blackbird." In 1979, the 7th Space Warning Squadron arrived at Beale AFB and installed a Phased-Array Warning System (PAVE PAWS), a large, phased-array radar designed to monitor foreign missile launches (Corbett, 1994; Krahulec and Goddard, 1980). Since 1966, the 9th Reconnaissance Wing has called Beale AFB home and is now its main occupant.

3.3.5.5 Archaeological Studies

Approximately 91 percent of the Beale AFB property has been systematically surveyed for cultural resources. Most survey coverage was accomplished through projects contracted by the Air Force pursuant to National Historic Preservation Act (NHPA) Section 110. The remainder typically involved small areas where the Air Force proposed specific undertakings, requiring NHPA Section 106 compliance. The remaining unsurveyed land has been heavily disturbed by prior development. Cultural resources investigation at Beale AFB consisted largely of block surveys, linear surveys, and site studies.

The investigations at Beale AFB have identified 125 sites. Of those, 37 are prehistoric archaeological sites, 40 are pre-military historical sites, 39 are associated with the military era, and 4 have multiple components. Prehistoric site CA-YUB-1157, located on Best Slough, was determined eligible and nominated for inclusion on the National Register of Historic Places (NRHP) (Saucedo and Wager 1992). The remaining prehistoric sites are largely bedrock milling stations with one or more bedrock mortars. No sites have been identified in the immediate vicinity of the proposed development site. The project site is located within the main base facility, which has been determined to have a low potential for cultural resources due to extensive prior disturbance (U.S. Air Force, 2013b).

3.3.5.6 Historical Buildings and Structures

Beale AFB has completed its identification requirements under Section 110 of NHPA for historic buildings and structures under its jurisdiction. Due to its unique

and historic significance, the PAVE PAWS facility, consisting of six buildings from the Cold War era, was determined eligible for inclusion on the NRHP, despite being less than 50 years old. Many additional structures at Beale AFB are more than 50 years old or approaching 50 years old, and those structures have yet to be evaluated for eligibility. Three military-era sites are located between 100 and 1,200 feet from the proposed project location. The structures within the project site were constructed in 1996 or later and are not currently eligible for inclusion on the NRHP.

3.3.5.7 Traditional Cultural Resources

National Register Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, provides technical information for identifying and evaluating Traditional Cultural Properties (TCPs). A TCP is defined generally as a resource “that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history and (b) are important in maintaining the continuing cultural identity of the community” (National Register Bulletin 38:1). Consultations with Native American and other stakeholders have not identified traditional cultural resources at Beale AFB that meet this definition.

4.0 ENVIRONMENTAL IMPACTS

This chapter presents the results of the analysis of potential environmental effects associated with the Proposed Action, Alternative 1, and No-Action Alternative. Changes to the natural and human environments that may result from the Proposed Action, Alternative 1, and No-Action Alternative were evaluated relative to the existing environment as described in Chapter 3.0. The potential for significant environmental impacts was evaluated using the context and intensity considerations as defined in CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Part 1508.27).

4.1 LOCAL COMMUNITY

This section describes the potential effects of the Proposed Action, Alternative 1, and No-Action Alternative on land use, aesthetics utilities (electrical), socioeconomics, and health and safety.

4.1.1 Land Use

4.1.1.1 Proposed Action

The Proposed Action would be consistent with the existing Beale AFB General Plan. Therefore, no significant impacts to land use would be expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on land use; therefore, no mitigation measures would be required.

4.1.1.2 Alternative 1

Alternative 1 would be consistent with the existing Beale AFB General Plan. Therefore, no significant impacts to land use would be expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on land use; therefore, no mitigation measures would be required.

4.1.1.3 No-Action Alternative

Under the No-Action Alternative, a new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the TMET/SATCOM facility would not be relocated. No changes in existing land use would occur, and impacts to land use would not be expected.

Mitigation Measures

No mitigation measures would be required.

4.1.2 Aesthetics

4.1.2.1 Proposed Action

The Project area is currently developed and includes vacant land that contains a tech pad and a paved parking area. Although the construction of the Proposed Action would change the visual character of the immediate area, it would be visually consistent with surrounding adjacent areas. Existing buildings, structures, and roads within sight of the Project area have created an urban setting in which the proposed construction project would be consistent. The area would continue to be of medium visual sensitivity. Therefore, no significant impacts to aesthetics are expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on aesthetics; therefore, no mitigation measures would be required.

4.1.2.2 Alternative 1

Potential impacts from implementation of Alternative 1 would be similar to those discussed under the Proposed Action. No significant impacts to aesthetics are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on aesthetics; therefore, no mitigation measures would be required.

4.1.2.3 No-Action Alternative

Under the No-Action Alternative, no construction would take place on the project area. The aesthetic quality of the site would remain unchanged, and no significant impacts to aesthetics would be expected.

Compensation Measures

No compensation measures would be required.

4.1.3 Utilities (Electrical)

4.1.3.1 Proposed Action

The Proposed Action would create an increase in electrical usage that is within the capacity of the current electrical system; however, the transformers at the B Street Substation would not be adequate to handle the redirection of electricity to the Proposed Action facilities. As a result, the B Street Substation would require a new transformer bank. Because the substation expansion would not cause a significant impact to the electrical system at Beale AFB, no significant impacts to electrical utilities would be expected.

Energy Usage

Implementation of the Proposed Action would result in a consolidation of mission functions into a new facility that is required to adhere to the U.S. EPA's guidance for construction of sustainable buildings and achieve at least a Leadership in Energy and Environmental Design (LEED) Silver certification status (U.S. EPA, 2008; U.S. Air Force, 2013a). Because the Proposed Action will likely result in an overall decrease to energy usage and an increase in alternative energy sources on Beale AFB, no significant impacts to energy usage would be expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact to electrical utilities; therefore, no mitigation measures would be required.

4.1.3.2 Alternative 1

Potential impacts from Alternative 1 would be similar to those of the Proposed Action. No significant impacts to electrical utilities are expected. No significant impacts to energy usage are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact to electrical utilities; therefore, no mitigation measures would be required.

4.1.3.3 No-Action Alternative

Under the No-Action Alternative, a new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the TMET/SATCOM facility would not be relocated. No changes in existing electrical utility use would occur, and impacts to electrical utilities would not be expected.

Mitigation Measures

No mitigation measures would be required.

4.1.4 Socioeconomics

4.1.4.1 Proposed Action

Most of the personnel affected by the construction and operation of the Proposed Action would be the officers, enlisted personnel, and civilians associated with the DCGS Operation. Other personnel would not be directly affected. Approximately 500 new positions would be created as a result of implementing the Proposed Action.

It is assumed that most of these personnel and their families affected by the increased DCGS Operations live either on or in the vicinity of Beale AFB.

Therefore, for analysis purposes, direct population and employment impacts are compared to the population of Sutter and Yuba Counties.

Population

Approximately 500 positions would be created by the increase in DCGS Operations mission. Based on a base average of 1.5 family members for each active duty military personnel, approximately 1,250 people would be directly affected by the Proposed Action. Because almost all of the positions that would be created are assigned military personnel, they would likely be assigned from other military installations. Assuming all new military personnel are transferred from outside of the ROI, the overall population of Sutter and Yuba Counties (population 166,892 in 2010) may be increased by 0.7 percent. The population increase would not be expected to result in any significant impacts to the natural or physical environment.

Because it is assumed that all 500 new employees would be transferred from outside the ROI, each employee represents one new household in the Sutter and Yuba Counties area. There are currently 5,700 vacant housing units in Sutter and Yuba Counties. The new personnel and their families would require 500 housing units. This represents a usage of 8.8 percent of all vacant housing units in the region. Because sufficient existing housing is available, significant impacts associated with the need to provide a large amount of new housing would not be expected.

Employment

The gain of approximately 500 positions would increase Beale AFB employment (currently 6,039) by approximately 8 percent. This would represent an increase in employment of approximately 0.9 percent in Sutter and Yuba Counties (employment 58,358 in 2013). It is expected that the military positions and personnel would not come from the current population of Sutter and Yuba Counties; therefore, the increase in employment as a result of the increase DCGS Operations would not result in an equivalent decrease in the unemployment in the ROI. The increase in employment is not considered significant, and no significant impacts to the natural or physical environment would be expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact to socioeconomics; therefore, no mitigation measures would be required.

4.1.4.2 Alternative 1

Potential impacts from Alternative 1 on population and employment would be similar to those of the Proposed Action. No significant impacts to socioeconomics are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact to socioeconomics; therefore, no mitigation measures would be required.

4.1.4.3 No-Action Alternative

Under the No-Action Alternative, a new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the TMET/SATCOM facility would not be relocated. No changes in existing population and employment would occur, and impacts to socioeconomics would not be expected.

Mitigation Measures

No mitigation measures would be required.

4.1.5 Health and Safety

4.1.5.1 Proposed Action

Construction of the Proposed Action will result in an increased potential for health and safety risks. These risks are associated with activities that would occur during a normal construction workday, and could have impacts on health and safety. Construction contractors would comply with OSHA and NIOSH safety standards, including appropriate protective equipment, construction site safety controls (e.g., fencing), and traffic safety controls.

The Proposed Action is located within the footprint of the TCE and carbon tetrachloride groundwater plume associated with ERP Site SS-39. As such, soil vapor could present a health hazard to construction workers. As a best management practice, the construction contractor should conduct soil vapor testing to determine the likelihood and extent of soil vapor contamination. The results of the soil vapor testing should determine a best course of action for moving forward with ground disturbing activities, which may include air monitoring or VOC filtering air purifiers. Workers performing ground-disturbing activities within the boundaries of an ERP site would have OSHA 40-hour HAZWOPER training. Because the project would occur in a known ERP site, it would be approved by Air Combat Command and the Air Force Civil Engineer Center prior to the initiation of construction activities.

Mitigation Measures

The Proposed Action is not expected to have a significant impact to health and safety; therefore, no mitigation measures would be required.

4.1.5.2 Alternative 1

Potential impacts from Alternative 1 would be similar to those of the Proposed Action. No significant impacts to health and safety are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact to health and safety; therefore, no mitigation measures would be required.

4.1.5.3 No-Action Alternative

Under the No-Action Alternative, a new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the TMET/SATCOM facility would not be relocated. No changes in existing health and safety conditions would occur, and impacts to health and safety would not be expected.

Mitigation Measures

No mitigation measures would be required.

4.2 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

This section describes the potential effects of the Proposed Action, Alternative 1, and No-Action Alternative on ERP sites and storage tanks.

4.2.1 ERP Sites

4.2.1.1 Proposed Action

The Proposed Action is located within the footprint of the TCE and carbon tetrachloride groundwater plume associated with ERP Site SS-39. Three monitoring wells that support characterization of the plume are situated around the perimeter of the Proposed Action area. Based on the most recent groundwater monitoring results, depth to groundwater in the area is 25 feet (U.S. Air Force, 2011a). Excavation and grading are not expected to reach this depth; therefore, significant impacts to ERP Sites are not anticipated.

Because the Proposed Action is situated within the footprint of the TCE and carbon tetrachloride plume, soil vapor intrusion could present a health hazard to building occupants. As a best management practice, the construction contractor should conduct soil vapor testing to determine the likelihood and extent of soil vapor contamination. The results of the soil vapor testing should determine a best course of action for moving forward with possible engineering controls, such as sub-slab venting and/or vapor barriers.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on ERP sites; therefore, no mitigation measures would be required.

4.2.1.2 Alternative 1

Potential impacts from Alternative 1 would be similar to those of the Proposed Action. No significant impacts to ERP sites are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on ERP sites; therefore, no mitigation measures would be required.

Because of the potential impacts from soil vapor intrusion, the construction contractor should conduct soil vapor testing to determine the likelihood and extent of soil vapor contamination. If recommended as a result of the testing, the Proposed Action should be constructed with appropriate engineering controls, such as sub-slab venting and/or vapor barriers.

4.2.1.3 No-Action Alternative

Under the No-Action Alternative, no construction would occur; therefore, no significant impacts are anticipated.

Mitigation Measures

No mitigation measures would be required.

4.2.2 Storage Tanks

4.2.2.1 Proposed Action

The two 12,000-gallon diesel ASTs associated with the backup generators under the Proposed Action would be subject to applicable federal, State, and local regulations including Spill Prevention, Control, and Countermeasures (SPCC) requirements (40 CFR 112), California Health and Safety Code (HSC) Section 25270, and Steel Tank Institute (STI) SP001 tanks standard. Tanks installed at Beale AFB must meet either Underwriters Laboratory (UL) 142 or UL2085 standards to be approved by the Fuels Management Team. All tanks require integrity testing once the tanks are in place, adequate secondary containment, overfill protection, level gauges, venting, labeling, and tank/building spacing. Adequate security for the AST area (e.g., fencing) would be implemented to prevent unauthorized access. Management of the ASTs in accordance with applicable regulations would minimize the potential for impacts. In addition, the ASTs would be incorporated into the Beale AFB SPCC Plan, which establishes responsibilities, requirements, and contingency plans to be used in the event a release occurs, and the Tank Management Plan; therefore, no significant impacts are anticipated.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on storage tanks; therefore, no mitigation measures would be required.

4.2.2.2 Alternative 1

Management of storage tanks would be the same as discussed for the Proposed Alternative.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on storage tanks; therefore, no mitigation measures would be required.

4.2.2.3 No-Action Alternative

Under the No-Action Alternative, no change in storage tanks would occur. No significant impacts to storage tanks would be expected.

Mitigation Measures

No mitigation measures would be required.

4.3 NATURAL ENVIRONMENT

This section describes the potential effects of the Proposed Action, Alternative 1, and No-Action Alternative on geology and soils, water resources, air quality, biological resources, and cultural resources.

4.3.1 Geology and Soils

4.3.1.1 Proposed Action

Geology

Implementation of the Proposed Action would make no significant change to the terrain or topography of the site. The facility would be constructed entirely within the footprint of the former tech pad, and no large-scale cut-and-fill activities would be conducted. Project activities would involve a small amount of ground-disturbing activities associated with the construction of the new facility and removal of some existing paved parking areas. These activities are not expected to significantly impact the geologic integrity of the area because they would not disturb the ground surface beyond those areas that have already been disturbed by past construction activities. Therefore, no significant impact to geology is expected.

Soils

Potential impacts to soil within the Project site from the Proposed Action would be minimal and would result primarily from ground disturbance associated with the demolition of existing structures and the construction of new buildings or infrastructure. These activities could alter soil profiles and local topography, as grading is required for both the demolition and construction activities.

The construction contractor would be required to obtain a Construction Site Storm Water National Pollutant Discharge Elimination System (NPDES) permit before initiating any construction activity. The contractor would also be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) for the construction activity. The Construction Site Storm Water NPDES permit, together with the required SWPPP, would outline construction site management practices designed to protect the quality of the surface water, groundwater, and natural environment through which they flow. The SWPPP would identify specific areas of existing and potential soil erosion, location of structural measures for sediment control, and management practices and controls. Use of these management practices and controls would reduce the potential for erosion of disturbed soils.

Under the Proposed Action, demolition and construction activities would disturb approximately 10.87 acres within the Project site.

Short-term erosion impacts could occur during ground-disturbing activities such as demolition of existing facilities, removal of vegetative cover, or grading. Potential impacts would be minimized through proper management practices defined within the approved SWPPP. Standard construction practices that could be implemented to minimize soil erosion include:

- Use of protective cover, such as mulch, straw, plastic netting, or a combination of these protective coverings
- Implementation of site grading procedures to limit the time soils are exposed prior to being covered by impermeable surfaces or vegetation
- Implementation of stormwater diversions to reduce water flow through exposed sites
- Maintenance of a buffer strip of vegetation around a pond or drainage, where possible, to filter sediments
- Retention of as many trees and shrubs as possible adjacent to exposed ground areas for use as natural windbreaks.

Once disturbed areas have been covered with pavement, buildings, or vegetation, their susceptibility to erosion would be significantly reduced. Upon completion of the construction phase, maintenance of a vegetative cover or covering undeveloped areas with gravel would serve as effective, long-term erosion control strategies for areas not covered with impervious surfaces. Soils underlying facilities and pavements are not subject to erosion.

Because management practices required by the developer's Construction Site Storm Water NPDES permit and SWPPP would be implemented during demolition and construction activities, no significant impacts to soils are anticipated.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on geology or soils; therefore, no mitigation measures would be required.

4.3.1.2 Alternative 1

Potential impacts from implementation of Alternative 1 would be similar to those discussed under the Proposed Action. No significant impacts to geology and soils are expected.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on geology or soils; therefore, no mitigation measures would be required.

4.3.1.3 No-Action Alternative

Under the No-Action Alternative, no ground-disturbing activities would take place on the project area. The No-Action Alternative would result in no potential for impacts to geology on the site or increased soil erosion or changes in sedimentation patterns.

Mitigation Measures

No mitigation measures would be required.

4.3.2 Water Resources

4.3.2.1 Proposed Action

Surface Water

The Proposed Action would have a localized and temporary effect on surface water hydrology. Ground disturbance during construction has the potential to increase soil erosion that could degrade water quality. Erosion control techniques would be incorporated to minimize erosion during construction.

Construction and operations activities would require the construction contractor to obtain a Construction Site Storm Water NPDES permit for stormwater runoff. Beale AFB requires the development and implementation of a SWPPP for ground-disturbing activities. The Construction Site Storm Water NPDES permit, together with the required SWPPP, would outline strict construction site management practices designed to protect the quality of the surface water, groundwater, and natural environment through which they flow. Therefore, significant impacts to surface waters would not be expected as a result of the Proposed Action.

Best management practices and applicable codes and ordinances would be implemented/adhered to in order to reduce potential stormwater runoff-related impacts to a level of insignificance. The following best management practices would be implemented prior and during construction activities:

- Ground-disturbing construction activities would be allowed only from May 1 to October 1.
- Erosion and sediment controls would be in place during construction to reduce and control siltation or erosion impacts on areas outside the proposed construction sites.
- Vehicle operators would observe the posted speed limit on paved roads and a 15-mile-per-hour speed limit on unpaved roads.
- Off-road travel by vehicles or construction equipment would be prohibited outside of designated work areas.
- Motor vehicles and equipment would be fueled and serviced in designated service areas.
- The construction contractor would obtain a Construction Site Storm Water NPDES permit and develop and implement a SWPPP.

Jurisdictional Waters of the United States

The proposed parking lot site has a small jurisdictional seasonal drainage that runs east to west. This seasonal drainage would be graded, filled, and paved over, and the water would be rerouted into underground drain piping that runs east to west under the new parking lot. For the purposes of this EA, it is assumed that the wetlands and water features in the project area are waters of the U.S. To calculate impacts to jurisdictional waters of the United States, only those areas that would be directly impacted by filling, grading, or compacting are assessed. A total of 0.002 acre of jurisdictional waters of the United States would be directly impacted by the Proposed Action. Mitigation of these impacts would be required (see below). Section 401 and 404 permit applications would need to be submitted to USACE, Sacramento District and the California RWQCB, Central Valley Region for their review and approval. Approval of the Section 401 and 404 permit applications would be obtained prior to commencement of construction activities. Construction of the parking lot and tech pad in this area would incorporate proper displacement of the water from the parking lot and tech pad area.

Soil excavated during construction of projects occurring within jurisdictional waters of the United States would be removed and disposed of by the contractor outside the Project area. Coordination with the Base Environmental Office is required prior to disposing of this excavated soil.

Groundwater

The Proposed Action would have no significant impact on groundwater within the Project area. The creation of large, impervious surfaces can affect groundwater recharge by precipitation or surface water infiltration; however, due to the relatively small size of the proposed parking lots, these effects are minor resulting in no significant impacts to groundwater.

No proposed wastewater discharge is associated with the Project, and pollutants that could potentially affect groundwater resources are not expected to be released.

Floodplains

The proposed development area is not located within a 100-year floodplain. None of the activities associated with the Proposed Action would impact floodplains.

Mitigation Measures

Because management practices required by the construction site stormwater NPDES permit and SWPPP would be implemented; no significant impacts to water resources are anticipated. Mitigation would be required for impacts to jurisdictional waters of the U.S.

Measure 1: The filling or rerouting of man-made/degraded ditches requires USACE mandated restoration of similar wetlands for compensation on a 1:1 ratio (see Table 4-1). It is assumed that any off-site jurisdictional waters (across the street from the construction area) would not require compensation, and that the drainages that would be impacted are considered “man-made/degraded.” Effects to jurisdictional waters could increase or decrease based on the requirements of Clean Water Act (CWA) permits. It is assumed vernal pool compensation acreage would have to be purchased off-base from vernal pool compensation banks, as a Project expense.

Table 4-1. Project Mitigation Compensation

| | Impacted Acres | Restoration, 1:1 (USACE) |
|-----------------------------------|----------------|-----------------------------|
| Jurisdictional Waters of the U.S. | 0.002 acre | 0.002 acre |

Measure 2: CWA permits would both require outdoor, ground-disturbing work to take place during the dry season, between 1 June and 31 October.

Measure 3: BMPs from SWPPP would be implemented during construction.

Measure 4: A qualified SWPPP practitioner would provide field oversight of SWPPP BMPs and required sampling during construction.

Measure 5: Potential threatened and endangered species habitat adjacent to the construction area would be protected by the contractor placing orange barrier

material or stakes and flagging around the perimeter of the threatened and endangered species habitat in coordination with the biological monitor. The contractor would provide materials to fence, stake, and flag boundaries of the adjacent vernal pools and other wetlands. The location of these barriers would be clearly marked on construction plans, and their placement would be supervised by the biological monitor.

Measure 6: Soil excavated during construction of projects occurring in potential jurisdictional waters would be removed and disposed of outside the Project area by the contractor. Coordination with the biological monitor and appropriate regulatory requirements are required prior to disposing of excavated soil.

4.3.2.2 Alternative 1

Potential impacts from implementation of Alternative 1 would be greater than discussed under the Proposed Action, due to the construction of the storage yard. Localized and temporary effects on surface water hydrology are expected. No significant impacts to groundwater or floodplains are expected.

Mitigation Measures

Because management practices required by the construction site stormwater NPPES permit and SWPPP would be implemented; no significant impacts to water resources are anticipated. Therefore, no mitigation measures would be required.

4.3.2.3 No-Action Alternative

Under the No-Action Alternative, surface water and groundwater within the Project area would remain unchanged.

Mitigation Measures

No mitigation measures would be required.

4.3.3 Air Quality

4.3.3.1 Proposed Action

The Proposed Action would involve operation of construction equipment and vehicles as a result of construction activities and operation of three new generators and two associated diesel ASTs under emergency conditions and other indirect sources associated with the Proposed Action such as new employee travel operations. Thus, potential air quality impacts are expected to result from the anticipated increase in construction and operation emissions. Pollutant emissions generated by the construction activities and indirect operational activities were predicted using the California Air Pollution Control Officers Association-developed California Emissions Estimator Model (CalEEMod, Version 2013.2) model in association with the size of the proposed land use project elements. Even though three new emergency generators would

only be operated under emergency conditions, the worst-case annual emissions from them were conservatively predicted using the U.S. EPA AP-42 emission factor handbook and the maximum operational hours for emergency generators, i.e., 500 hours based on the EPA default value for emergency generators. These generators and diesel ASTs should be managed according to the base's Spill Prevention, Control, and Countermeasures Plan, Tank Management Plan, and Air Quality Permit to Operate requirements.

Clean Air Act General Conformity Rule Applicability

The Proposed Action would result in an increase in air emissions as compared to the No-Action Alternative during construction years and operational years (Table 4-2). However, these net emissions would be well below the *de minimis* threshold and no formal general conformity determination is required. Therefore, the potential air quality impact is less than significant. The detailed emissions estimate can be found in Appendix B.

Table 4-2. Total Net and Net Percent Increase in Construction and Operation Emissions – Proposed Action

| Annual Emissions (tons) | | | | | | | | |
|--|--------------|-----------------|---------------|-------------------|------------------|-----------------|-------------|---------------------------|
| Category | VOC | NO _x | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAPs | CO ₂ |
| Construction Years | 1.2 | 2.8 | 2.8 | 0.2 | 0.3 | 0.0 | 0.3 | 344.0 |
| Operational Years | 3.5 | 37.6 | 14.8 | 1.3 | 1.8 | 0.0 | 0.0 | 2,978.8 |
| Baseline/No-Action Emissions Inventory | <i>36.84</i> | <i>103.33</i> | <i>300.75</i> | <i>23.33</i> | <i>54.07</i> | <i>4.26</i> | <i>1.51</i> | <i>82,518¹</i> |
| Maximum Net Percent Increase in Operational Emissions over Baseline Stationary Source Annual Emissions Inventory (%) | 9.5 | 36.4 | 4.9 | 5.6 | 3.3 | 0.0 | 0.1 | 3.6 |
| <i>De minimis Threshold</i> | <i>100</i> | <i>100</i> | <i>n/a</i> | <i>100</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> |

Source: Baseline emissions inventory data is from 2010 Air Emissions Inventory Report, November 2012.

Note: ¹ Total level inventoried.

Feather River Air Quality Management District Indirect Source Review Guidelines

For indirect sources associated with land use development projects, the FRAQMD established the guideline for both operational and construction emissions. Thresholds of emissions significance have been established on average daily and annual basis.

The Proposed Action would result in an increase in indirect source air emissions as compared to the No-Action Alternative during construction and operation years (Table 4-3). However, these emissions would be below the FRAQMD emissions significance thresholds and no mitigation measures are warranted.

Table 4-3. Total Indirect Source Net Increase in Construction and Operation Emissions – Proposed Action

| Category | VOC | NO _x | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAPs | CO ₂ |
|--|------|-----------------|------|-------------------|------------------|-----------------|------|-----------------|
| Average Annual Construction Emissions (tons) | 1.2 | 2.8 | 2.8 | 0.2 | 0.3 | 0.0 | n/a | 344.0 |
| Average Daily Construction Emissions (lbs) | 8.6 | 20.7 | 20.3 | 1.4 | 2.1 | 0.0 | n/a | 2,512.9 |
| Average Annual Operation Emissions (tons) | 2.5 | 1.4 | 6.5 | 0.2 | 0.7 | 0.0 | n/a | 1,228.8 |
| Average Daily Operation Emissions (lbs) | 13.5 | 7.8 | 35.5 | 1.2 | 4.1 | 0.1 | n/a | 6,733.2 |
| <i>FRAQMD Construction Annual Emissions Threshold of Significance (tons)</i> | 4.5 | 4.5 | n/a | n/a | n/a | n/a | n/a | n/a |
| <i>FRAQMD Average Daily Emissions Threshold of Significance (lbs)</i> | 25 | 25 | n/a | n/a | 80 | n/a | n/a | n/a |

The detailed relevant emissions estimate for indirect sources associated with land use development element can be found in Appendix B.

Attainment Criteria Pollutant and HAPs Emissions

Unlike the nonattainment criteria pollutants, the *de minimis* levels have not been established for attainment criteria pollutants and HAP emissions. This EA follows AFI 32-7040 (June 8, 2011a) and quantifies these emissions with the comparison of the relevant on-base baseline annual emissions inventory for the purpose of informing the public and decision makers about the relative air quality impacts from the proposed action and alternatives under NEPA requirements. Since the increase in attainment pollutant and HAP emissions predicted for the proposed project for mobile sources (see Appendix B) are only fractions of the available baseline emissions inventory as summarized in Table 4-2, the Proposed Action would have negligible and non-significant air quality impact with respect to attainment pollutants and HAPs.

Greenhouse Gas Emissions

The change in climate conditions caused by GHG resulting from the burning of fossil fuels from construction activities associated with the Proposed Action is a global effect, and requires that the emissions be assessed on a global scale. Therefore, the disclosure of localized incremental emissions (Table 4-2) has no weight in addressing climate change. Consequently, given the minimal increase predicted for the proposed project, which is well below the CEQ meaningful assessment threshold of 25,000 metric tons per year, the proposed project would result in an insignificant impact on overall global or U.S. cumulative GHG emissions and global climate change. No specific GHG emission mitigation measures are warranted.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on air quality; therefore, no mitigation measures would be required.

4.3.3.2 Alternative 1

Pollutant emissions impacts from Alternative 1 would be slightly higher but similar to those of the Proposed Action as summarized in Table 4-4 for combined total annual emissions and Table 4-5 for indirect source average daily and annual emissions. No significant impacts to air quality are expected.

Table 4-4. Total Net and Net Percent Increase in Construction and Operation Emissions – Alternative 1

| Annual Emissions (tons) | | | | | | | | |
|--|--------------|-----------------|---------------|-------------------|------------------|-----------------|-------------|---------------------------|
| Category | VOC | NO _x | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAPs | CO ₂ |
| Construction Years | 1.4 | 3.3 | 3.2 | 0.2 | 0.3 | 0.0 | 0.3 | 397.4 |
| Operational Years | 3.9 | 39.0 | 16.3 | 1.4 | 2.0 | 0.0 | 0.0 | 3,251.7 |
| Baseline/No-Action Emissions Inventory | <i>36.84</i> | <i>103.33</i> | <i>300.75</i> | <i>23.33</i> | <i>54.07</i> | <i>4.26</i> | <i>1.51</i> | <i>82,518¹</i> |
| Maximum Net Percent Increase in Operational Emissions over Baseline Stationary Source Annual Emissions Inventory (%) | 10.5 | 37.7 | 5.4 | 6.0 | 3.7 | 0.0 | 0.1 | 3.9 |
| <i>De minimis Threshold</i> | <i>100</i> | <i>100</i> | <i>n/a</i> | <i>100</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> |

Source: Baseline emissions inventory data is from 2010 Air Emissions Inventory Report, November 2012.

Note: ¹ Total level inventoried.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on air quality; therefore, no mitigation measures would be required.

4.3.3.3 No-Action Alternative

Under the No-Action Alternative, no change in air emissions (see Table 4-2) would occur. Because existing conditions would not change, no impacts to air quality would be expected.

Mitigation Measures

No mitigation measures would be required.

Table 4-5. Total Indirect Source Net Increase in Construction and Operation Emissions – Alternative 1

| Category | VOC | NO _x | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAPs | CO ₂ |
|--|------|-----------------|------|-------------------|------------------|-----------------|------|-----------------|
| Average Annual Construction Emissions (tons) | 1.4 | 3.3 | 3.2 | 0.2 | 0.3 | 0.0 | n/a | 397.4 |
| Average Daily Construction Emissions (lbs) | 10.2 | 24.3 | 23.4 | 1.6 | 2.5 | 0.0 | n/a | 2,903.3 |
| Average Annual Operation Emissions (tons) | 2.9 | 1.8 | 8.0 | 0.3 | 0.9 | 0.0 | n/a | 1,510.7 |
| Average Daily Operation Emissions (lbs) | 16.1 | 9.6 | 43.8 | 1.4 | 5.0 | 0.1 | n/a | 8,278.0 |
| <i>FRAQMD Construction Annual Emissions Threshold of Significance (tons)</i> | 4.5 | 4.5 | n/a | n/a | n/a | n/a | n/a | n/a |
| <i>FRAQMD Average Daily Emissions Threshold of Significance (lbs)</i> | 25 | 25 | n/a | n/a | 80 | n/a | n/a | n/a |

4.3.4 Biological Resources

4.3.4.1 Proposed Action

Under the Proposed Action, demolition of the tech pad and construction of the new DCGS Operations Facility would not impact biological resources since these structures are situated on previously developed land. The proposed parking lot has the potential to impact approximately 2.81 acres of undeveloped burrowing owl and 0.132 acre of potential branchiopod habitat. The following discusses the potential biological impacts associated with construction of the proposed parking lot.

Vegetation

The Proposed Action would be expected to disturb approximately 10.87 acres (6.0 acres of undeveloped land, 4.87 acres of paved/developed land). Vegetation on the site consists of species associated with annual grasslands and vernal pools. Implementation of the Proposed Action would result in an approximately 2.81-acre loss of annual grassland habitat due to construction of the proposed parking lot; however, Beale AFB has an abundance of comparable grassland habitat in the surrounding area. Therefore, no significant impacts to grassland habitat from implementation of the Proposed Action would be anticipated.

Wildlife

Implementation of the Proposed Action would result in an approximately 2.81-acre loss of foraging habitat due to construction of the proposed parking lot; however, Beale AFB has an abundance of comparable foraging habitat in the surrounding area. Therefore, no significant impacts on foraging habitat from

implementation of the Proposed Action would be anticipated. The Proposed Action would not impact any wildlife corridors.

Threatened and Endangered Species

Three state or federally listed rare, threatened, or endangered wildlife species are currently known to occur within the Project area. The Proposed Action would remove 0.132 acre (5,749.92 SF) of potential habitat, which may be occupied by the federally listed as threatened vernal pool fairy shrimp and the federally listed as endangered vernal pool tadpole shrimp. In addition, demolition of existing structures may remove nesting habitat for bird species covered under the Migratory Bird Treaty Act (16 U.S.C. 703-712).

Areas subject to construction and demolition activities would require preconstruction nesting bird surveys performed by the contractor (see Measure 3, below). Coordination with the Base Environmental Office is required prior to initiating preconstruction survey activities.

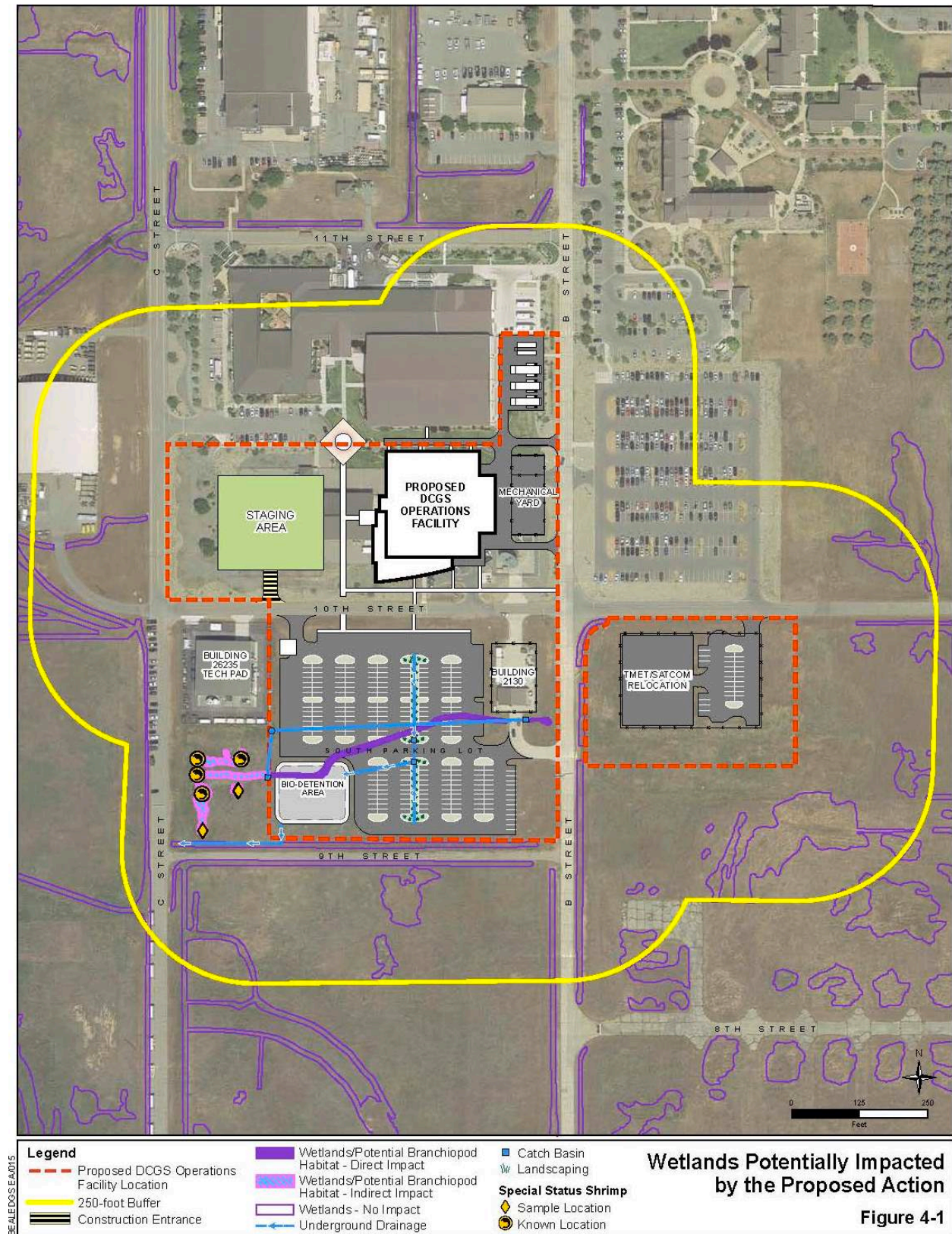
If nesting burrowing owls are encountered during the preconstruction survey, passive relocation would be implemented to avoid take.

Sensitive Habitats

Approximately 0.132 acre (5,749.92 SF) of potential branchiopod habitat would be indirectly impacted by the Proposed Action (Figure 4-1). It is assumed that vernal pools and seasonal depressions within the project area provide potential habitat for vernal pool tadpole shrimp and vernal pool fairy shrimp. It is further assumed that wetlands within the project area would be directly and permanently impacted by the Proposed Action. These impacts are considered adverse. Beale AFB has initiated consultation with the USFWS regarding the direct and indirect impacts to potential branchiopod habitat.

The proposed project site where the parking lot to the south is planned has a small jurisdictional seasonal drainage that runs east to west and feeds the vernal pools at the northeast corner of C and 9th Streets. This seasonal drainage would be graded, filled, and paved over, and the water would be rerouted into underground drain piping that runs east to west under the new parking lot. The Proposed Action also has the potential to impact the hydrology of the vernal pools due to Proposed Action activities, both because the vernal pools are lower in elevation than the work site and because rerouting the drainage would have an impact on the water source for the vernal pools.

Wetland areas and/or potential branchiopod habitat subject to construction and demolition activities would require several compensation measures, including wetland habitat restoration, demarking vernal pools for avoidance, and excavated soil disposition and proper disposal performed by the contractor (see Measures 1, 2, 9, and 10, below). Coordination with the Base Environmental Office is required prior to initiating compensation activities.



Mitigation Measures

Compensation measures described below were derived from the SAMP BO, dated October 2012.

Measure 1: The filling of vernal pools typically requires USFWS-mandated preservation of vernal pools for compensation on a 3:1 ratio (as recommended in the SAMP BO, dated October 2012). The filling or rerouting of man-made/degraded drainages requires USACE mandated restoration of similar wetlands for compensation on a 1:1 ratio (Table 4-6). It is assumed that any off-site wetlands (across the street from the construction area) would not require compensation, and that the drainages that would be impacted are considered “man-made/degraded.” Effects to wetlands could increase or decrease based on the results of USFWS consultation and any requirements of Clean Water Act (CWA) permits. It is assumed vernal pool compensation acreage would have to be purchased off-base from vernal pool compensation banks, as a Project expense.

Table 4-6. Project Mitigation Compensation

| | Direct Impacts | Indirect Impacts | Preservation, 3:1 (USFWS) | Restoration, 1:1 (USACE) |
|--|----------------|------------------|------------------------------|-----------------------------|
| Vernal Pool/Potential Branchiopod Habitat | -- | 0.132 acre | 0.396 acres | N/A |
| Jurisdictional Waters of the U.S. | 0.002 acre | -- | N/A | 0.002 acre |

Measure 2: CWA permits and USFWS consultation would both require outdoor, ground-disturbing work to take place during the dry season, between 1 June and 31 October.

Measure 3: The construction area and vicinity would be surveyed for protected migratory birds which could be nesting on the ground, on existing structures, or in trees. If protected birds are found nesting, avoidance measures may be required such as postponing construction within a specified distance of an active nest.

Measure 4: During construction, a qualified biologist would provide assistance and supervision of avoidance, minimization, and compensation measures identified during USFWS consultation.

Measure 5: BMPs from SWPPP would be implemented during construction.

Measure 6: A qualified SWPPP practitioner would provide field oversight of SWPPP BMPs and required sampling during construction.

Measure 7: A biological monitor would conduct environmental awareness training for construction crews before and during Project implementation. The education program would briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the Proposed Action site. Awareness training would cover restrictions and guidelines that must be followed by construction crews to avoid

or minimize impacts on threatened and endangered species and their habitat. Environmental awareness training would be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews.

Measure 8: The contractor would provide materials to stake and flag boundaries of the Project work area. The contractor would coordinate with the biological monitor to stake and flag the boundaries of work and staging areas in portions that have the potential to support vernal pool tadpole shrimp, vernal pool fairy shrimp, burrowing owl, or their habitat. Staking and flagging would be done before construction commences to ensure that construction vehicles, equipment, and personnel would not enter areas that have the potential to be occupied by vernal pool tadpole shrimp, vernal pool fairy shrimp, burrowing owl, or their habitat. The contractor would remove stakes and flagging within 60 days of construction completion.

Measure 9: Potential threatened and endangered species habitat adjacent to the construction area would be protected by the contractor placing orange barrier material or stakes and flagging around the perimeter of the threatened and endangered species habitat in coordination with the biological monitor. The contractor would provide materials to fence, stake, and flag boundaries of the adjacent vernal pools and other wetlands. The location of these barriers would be clearly marked on construction plans, and their placement would be supervised by the biological monitor.

Measure 10: Soil excavated during construction of projects occurring in potential branchiopod habitat would be removed and disposed of outside the Project area by the contractor. Coordination with the biological monitor and appropriate regulatory requirements are required prior to disposing of excavated soil.

Measure 11: On-site passive relocation would be implemented to encourage burrowing owls to move from any occupied burrows within the Project boundaries to an alternate burrow created on adjacent property.

4.3.4.2 Alternative 1

Biological impacts would be greater with direct impacts to branchiopod habitat due to construction of the storage yard. Water impacts would be greater due to fill of vernal pools for construction of the storage yard.

Mitigation Measures

Alternative 1 is expected to have similar impacts to biological resources as discussed under the Proposed Action; therefore, compensation measures would be the same as for the Proposed Action.

4.3.4.3 No-Action Alternative

Under the No-Action Alternative, the new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the

TMET/SATCOM facility would not be relocated. No impact to biological resources would be expected.

Mitigation Measures

No mitigation measures would be required.

4.3.5 Cultural Resources

The area of focus for this EA is the ROI for the Proposed Action. Section 106 of NHPA of 1966, as amended, requires federal agencies to take into account the effects of their actions on historic properties. Federal agencies must allow the Advisory Council on Historic Preservation a reasonable opportunity to comment on any federal undertakings affecting cultural resources, in accordance with the Environmental Impact Analysis Process, a program that implements NEPA.

Federal agencies are required by Section 110 of the NHPA to assume responsibility for identifying, evaluating, nominating, and protecting historic properties under their control. Historic properties are cultural resources that are listed in, or eligible for listing in, the NRHP. Impacts to cultural resources may be considered adverse if the resources have been determined eligible for listing in the NRHP or have significance for Native American groups. The proposed Project site contains no known historic properties that are eligible for listing in the NRHP, nor any identified sites of significance to Native American groups.

4.3.5.1 Proposed Action

Prehistoric and Historical Archaeological Resources

No prehistoric or historic archaeological properties are known within the ROI. The entirety of the ROI has been surveyed, and no cultural resources have been located. According to base records, the area has been disturbed by previous construction and operational use. No prehistoric or historical-age archaeological resources are expected to be affected by the Proposed Action. Consultation with the California State Historic Preservation Officer (SHPO) was initiated on 9 April 2014. In the unlikely event that archaeological resources are encountered during construction activities, the construction contractor would suspend work in the immediate area. The Beale AFB Cultural Resource Manager and the California SHPO (as appropriate) would be notified. Subsequent actions would follow the guidance provided in 36 CFR Part 800.13 and the Native American Graves Protection and Repatriation Act.

Historic Buildings and Structures

No historic buildings or structures are located within the ROI of the Proposed Action. The closest historic building is 100 feet southwest of the project site. Vibrations from ground-disturbing activities are not expected to reach this distance; therefore, impacts to historic properties are not expected from the Proposed Action.

Traditional Cultural Resources

No traditional cultural resources are known within the ROI; therefore, no effects to traditional cultural properties are expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on cultural resources; therefore, no mitigation measures would be required.

4.3.5.2 Alternative 1

Potential impacts from implementation of Alternative 1 would be similar to those discussed under the Proposed Action. No impacts are anticipated.

Mitigation Measures

Alternative 1 is not expected to have a significant impact on cultural resources; therefore, no mitigation measures would be required.

4.3.5.3 No-Action Alternative

Under the No-Action Alternative, the new DCGS Operations Facility, associated parking lot, and support facilities would not be constructed, and the TMET/SATCOM facility would not be relocated. No impact to historic properties would be expected.

Mitigation Measures

No mitigation measures would be required.

4.4 UNAVOIDABLE AND ADVERSE ENVIRONMENTAL EFFECTS

Unavoidable adverse effects would result from implementation of the Proposed Action or Alternative 1. The Proposed Action or Alternative 1 would result in direct and indirect impacts to vernal pools, wetlands, and other waters of the United States. Compensatory mitigation would be implemented, as is prescribed by the SAMP BO (USFWS, 2012).

4.5 COMPATIBILITY OF THE PROPOSED ACTION WITH THE OBJECTIVES OF FEDERAL, STATE, REGIONAL, AND LOCAL LAND USE PLANS AND POLICIES

Neither the Proposed Action, Alternative 1, nor the No-Action Alternative would adversely affect federal, State, regional, or local land use plans and policies.

4.6 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

Neither the Proposed Action, Alternative 1, nor the No-Action Alternative would affect the long-term productivity of the environment because significant

environmental impacts would be mitigated, and natural resources would not be depleted.

4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action would require use of resources such as labor, fuel, and construction materials.

4.8 CUMULATIVE IMPACTS

Cumulative impacts result from “the incremental impact of actions when added to other past, present, and reasonable foreseeable future action regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (Council on Environmental Quality, 1978).

The following list identifies past, present and future projects that have been recently completed or are planned at Beale AFB over the next 5 fiscal years (Rolfness, 2013):

- Construct Contingency Well Improvements
- Construct Irrigation Wells on Main Base
- Construct Warehouse District
- Consolidate and Upgrade the Air Force Combat Ammunition Center
- Construct Lodging Facility
- Construct Fitness Center
- Construct Consolidated Deployment Facility
- Construct Civil Engineer Complex
- Construct Small Arms Range
- Construct Airfield Lighting Maintenance Facility
- Construct Security Forces Squadron Mobility Storage Yard
- Construct Munitions Storage Area Road
- Construct Distributed Ground System Facility
- Construct Common Mission Control Center
- Construct California Air National Guard Headquarters and Training Facility
- Construct Rapid Engineers Deployable Heavy Operations Repair Squadron Engineers Heavy Equipment Training Area
- Construct Aircraft Corrosion Control Facility

- Repair and Improve Wastewater Treatment Plant
- Construct and Improve Wheatland Gate
- Construct RQ-4 Centralized Operations and Maintenance Facility
- Construct Force Support Complex
- Construct Vehicle Maintenance Facility
- Repair Airfield Drainage
- Repair Beale West and Lakeview Utilities
- Repair Sewer Main Lines Dry Creek Zone
- Repair Airfield Storm Water Drainage
- Repair Bridges 3111, 3112, 3113, and 3114
- Runway Joints Maintenance
- Demolish Communications Facility (Building 800)
- Demolish Army and Air Force Exchange Service Clothing Sales building (Building 2457)
- Demolish Capehart Gas Station (Building 3304)
- Demolish Doolittle, Vassar, and Grass Valley Guard Shacks (Buildings 1299, 3296, and 5775)
- Demolish Old Lox Facility (Building 1006)
- Demolish SR Shelters (Buildings 1055 and 1056)
- Demolish Battery Shop (Building 1088) and Building 1154
- Demolish Building 421 and Sanitary Latrine (Building 1250)
- Demolish and Construct Multiple Houses under the Military Family Housing Privatization
- Demolish and Consolidate Force Support Squadron Warehouse (Building 2153).

Table 4-7 summarizes the potential cumulative effects on resources from the Proposed Action at Beale AFB, when combined with other past, present, and future activities. No significant impacts on the environment would be anticipated from the proposed actions and their alternatives at Beale AFB in conjunction with past, present, and future activities.

Projects within the immediate vicinity of the Proposed Action are described further below.

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB
Page 1 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|--------------------------|--|--|--|--|--|
| Land Use | Past development practices have extensively modified land use. | Military missions and grazing land uses are present. | The proposed project would be consistent with land use designations. | No deviations from Beale AFB and municipal off-installation general plans are anticipated. | The Proposed Action would not significantly induce further development at Beale AFB or surrounding areas, and would generally comply with installation and off-installation general plans. No significant cumulative effects would occur. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 2 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|-------------------|--|---|---|--|---|
| Health and Safety | Historic military training and land uses have resulted in areas that are affected by explosives concerns or environmental contamination. | Ongoing activities include identification and recordation of historic and active ranges and management of areas of contamination. | Short-term, minor, adverse effects would occur due to the potential slight increase in short-term risks associated with construction and demolition activities. Potential adverse effects from performing construction within ERP sites could also occur. There is a possibility of encountering contaminated material and inadvertent discovery of munitions and UXO during construction and demolition activities. | Future projects could result in short-term, adverse effects on construction workers from slight increases in risks associated with construction and demolition activities. | Short-term, adverse effects on construction workers from slight increase in risks associated with construction and demolition activities; and potential discovery of UXO and munitions. However, no long-term cumulative effects would be expected. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 3 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|--------------------------------|--|---|---|--|---|
| Hazardous Materials and Wastes | Hazardous wastes and materials, petroleum products, and pesticides have been used, and ACM, LBP, PCBs, ASTs and USTs, ERP sites, and MMRP sites occur at Beale AFB as a result of its historic use as a military installation. | Hazardous materials are stored and used on the installation, and hazardous wastes are generated and stored. ERP and MMRP sites are undergoing remediation efforts and construction projects occur within existing and closed ERP sites. | Short-term, minor, adverse effects would occur from construction activities that use and generate small amounts of hazardous materials and waste. Short-term, minor, adverse effects might occur from construction activities on ERP sites. | Future projects would generate small amounts of hazardous materials and waste and generate short-term, minor, adverse effects. Short-term, minor, adverse effects might occur from construction activities on ERP sites. | There would be temporary increases in the generation of hazardous materials and waste; however, no cumulative effects would be expected. Long-term, beneficial, cumulative effects would be expected from the removal of ACM and LBP from older facilities that are being demolished. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 4 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|--------------------------|---|--|---|---|--|
| Geology and Soils | Past Beale AFB development activity has resulted in soil disturbance and conversion of soils into areas of permanent development. | Modification of soils for development. | Grading, excavating, and recontouring of the soil would result in short-term, minor to moderate, adverse effects; however, implementation of BMPs would minimize long-term effects. | Grading, excavating, and recontouring of the soil would result in further soil disturbance. | Impacts on soils would be permanent, but localized to specific areas of development. Cumulative effects are not anticipated to be significant. |
| Water Resources | Surface water quality has been moderately impacted by development and agriculture. Waters of the United States have been impacted from past development, agriculture, and mining. | Minor surface water impairment due to construction activities. | Short-term, minor, adverse effects would be expected from potential erosion and sedimentation from construction and increases in impervious surface area; however, significant, long-term, adverse effects would be prevented by adherence to BMPs and environmental protection measures. Mitigation would be implemented as necessary to offset any potential impact to waters of the United States. | Construction activities would increase the potential for sedimentation. There would be minor increases in impervious surface area. No net loss of wetlands or waters of the United States would be expected because of compensatory mitigation, where required due to direct impacts. | Increased impervious area would have negligible impacts on storm water discharges and water quality. Cumulatively, direct impacts on wetlands and waters of the United States would be adverse, but no net loss would be expected due to compensation and preservation measures. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 5 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|-------------------|--|--|--|---|--|
| Noise | Dominant noise sources included military aircraft operations and automobile traffic since the establishment of the military installation in the 1940s. | Dominant noise sources include military aircraft operations, including weapons training and aircraft maintenance activities, and automobile traffic. | Short-term noise would occur from construction and demolition. No long-term effects would be expected. | Construction and demolition activities would result in short-term noise level increases in the vicinity. Operation of projects, such as the small arms range, could result in increased long-term noise. | Cumulative construction and demolition activities would not pose a significant increase in noise as it would be localized to each project site. The cumulative noise environment would continue to be affected primarily by military aircraft operations and automobile traffic. |
| Air Quality | Past actions have resulted in Yuba County being classified as a Federal nonattainment area for PM _{2.5} and a state nonattainment for O ₃ and PM ₁₀ . | Emissions are from aircraft, vehicles, construction activities, and stationary equipment. | Emissions from construction and demolition activities would have short-term, minor, adverse effects on local air quality and negligible effects on regional air quality. | Emissions would be expected during soil removal, site grading, and construction activities. Operation of projects, such as the aircraft corrosion control facility, could result in changes to air permits. | Cumulative effects would not be anticipated to be significant. Yuba County is expected to continue in their current Federal and state attainment status. Actions would likely be <i>de minimis</i> . Effects would not be anticipated to be significant. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 6 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|--------------------------|--|--|---|---|--|
| Biological Resources | Habitats of sensitive and common wildlife and plant species have been impacted from development and agriculture use. | Effects on wildlife habitat and plants occur from construction and operations at Beale AFB. Beale AFB manages natural resources in accordance with the INRMP and the SAMP. | Construction activities could result in minor losses of vegetation and wildlife habitat through direct impacts. There would also be indirect effects on vernal pool habitat. Federally listed species, including vernal pool tadpole shrimp, and vernal pool fairy shrimp could be affected. Mitigation would be implemented as necessary to offset impacts on wetlands and vernal pools. | Construction would result in disturbance of vegetation. Construction and operations would result in direct and indirect, short-term, adverse effects on threatened and endangered species. Some projects would adversely impact vernal pool crustaceans. Demolition projects would increase natural habitats through revegetation. | Construction would result in disturbance of vegetation and wildlife habitat. Construction and operations would result in direct and indirect adverse effects on threatened and endangered species and their habitats. Some projects would adversely impact vernal pool crustaceans and wetlands. However, cumulative effects would not be expected to be significant because of compensation and preservation measures. |
| Cultural Resources | Past development and land use activities have likely destroyed or altered unknown artifacts before their significance was known. | Cultural resources are managed according to the installation's ICRMP. | Coordination under Section 106 of NHPA was completed. The SHPO concurred with a determination of no historic properties affected. | Projects would impact ineligible sites and potentially eligible historic archaeological sites; however, effects are not anticipated to be significant. | Projects would adversely impact ineligible sites and potentially eligible historic archaeological sites. Cumulative effects would not be significant. |

Table 4-7. Cumulative Effects on Resource Areas at Beale AFB

Page 7 of 7

| Resource Category | Past Actions | Current Background Activities | Proposed Action | Known Future Actions | Cumulative Effects |
|--------------------------|--|--|---|---|--|
| Infrastructure | Water supply, sanitary sewer and wastewater, storm drainage, electrical, natural gas, communications, and liquid fuels systems and solid waste management protocols have been well developed on Beale AFB and in the surrounding urban area. | Utilities and infrastructure systems are generally in good working condition, supporting the Beale AFB mission and population. Some systems, such as the overhead electrical distribution system and the sanitary sewer system, are aging and require upgrades. | Short-term, minor to moderate, adverse effects could occur due to service interruptions as infrastructure systems are upgraded, repaired, or replaced. | Future projects would place additional short- and long- term demands on utilities and infrastructure at Beale AFB and generate short- and long- term negligible to minor effects. | Short- and long-term demands could be placed on utilities, service systems, and infrastructure; however, no cumulative effects would be expected |
| Transportation | Traffic infrastructure has been constructed on the installation to ease traffic circulation. | Traffic infrastructure is maintained as needed on the installation, which can result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities. | Short-term, adverse effects on traffic due to road and lane closures during construction activities, and long-term, beneficial effects from construction of additional parking areas would be expected. | Projects would result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities. | Projects would result in short-term, adverse effects on traffic circulation due to road and lane closures during construction activities; however, cumulative effects would not be anticipated to be significant. Long-term, beneficial effects would be expected from improving roadways and bridges and parking areas. |

Electrical Utility Infrastructure Improvements. Power pole replacements are anticipated along C Street west of the Proposed Action. Impacts from the pole replacement are expected to be minimal.

Construction of a Temporary Lodging Facility. Beale AFB proposed to construct a temporary lodging facility for transitional housing, with 32 two-bedroom units and 2 handicap-accessible two-bedroom units, associated parking areas, access roads, sidewalks, a playground, and picnic areas. Impacts from the construction of this facility are expected to be mitigated to insignificance through wetland mitigation.

Bridge Repair/Replacement on Gavin Mandery Drive. Beale AFB is expected to repair four bridges and replace two bridges along Gavin Mandery Drive due to structural deterioration and traffic needs. Impacts to soils and geology and biological resources are expected from the bridge repair/replacement project, and they are expected to be mitigated to insignificance through an erosion and sediment control plan and wetland mitigation.

Implementation of the Sanitary Sewer Optimization Plan. Beale AFB will relocate several portions of the existing sanitary sewer collection system that run within or over Dry Creek. Impacts to soils and geology are expected from the Sanitary Sewer project, and are expected to be mitigated through an erosion and sediment control plan.

Base Demolition Plan. Beale AFB is planning to implement a Base Demolition Plan, which would remove 10 buildings on Beale AFB and 46 buildings at the Point Arena Air Force Station. This project will be undertaken to reduce the physical plant footprint of the installation. Impacts on Beale AFB from the Demolition Plan are expected to be minimal.

Common Mission Control Center (CMCC). Future construction of the CMCC and associated parking is anticipated in the area to the west of the Proposed Action. Construction of a new facility would occur on land that is currently occupied by the 9 IS tech pad and parking lot. Impacts from this expansion would be similar to those anticipated under the facility portion of the Proposed Action.

No other projects that would occur adjacent to the proposed Project site that would have the potential to result in cumulative impacts with the proposed Project have been identified. In addition, because the Proposed Action would not substantially change the basic, long-term integrity or character of the site, no cumulative impacts to utilities, noise, land use, soils and geology, air quality, health and safety, or cultural resources are expected.

Several of the future projects on Beale AFB would have impacts to water resources and biological resources, specifically due to unavoidable impacts to wetlands and sensitive habitat on the installation. However, cumulative impacts are not expected to be significant because of mitigation measures in place to preserve and restore wetlands that result in a net increase in wetland acreage.

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5.0 CONSULTATION AND COORDINATION

The federal, State, and other agencies that were contacted during the preparation of this EA are listed below.

FEDERAL AGENCIES

U.S. Fish and Wildlife Service

STATE AGENCIES

State Historic Preservation Officer

OTHER AGENCIES

Native American Heritage Commission

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Sacramento Area Council of Governments (SACOG)
Attn: Mr. Greg Chew
1415 L Street, Suite 300
Sacramento, CA 95814

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

State Water Resources Control Board
Division of Water Quality
1001 I Street
P.O. Box 806
Sacramento, CA 95812-4025

Local Agencies

Yuba County Planning Department
Attn: Wendy Hartman, Planning Director
915 8th Street, Suite 123
Marysville, CA 95901

Feather River Air Quality Management District
Attn: Sondra Andersson
1007 Live Oak Boulevard, Suite B-3
Yuba City, CA 95991

Native American Groups

Berry Creek Rancheria of Maidu Indians
Attn: Jim Edwards
Chairperson
5 Tyme Way
Oroville, CA 95966

Enterprise Rancheria of Maidu Indians
Attn: Glenda Nelson
Chairperson
2133 Monte Vista Avenue
Oroville, CA 95966

Mechoopda Indian Tribe of Chico Rancheria (Maidu)
Attn: Dennis Ramirez
Chairperson
125 Mission Ranch Boulevard
Chico, CA 95926

Mooretown Rancheria
Attn: Gary Archuleta
Chairperson
#1 Alverda Drive
Oroville, CA 95966

Shingle Springs Rancheria
Attn: Jeff Murray
P.O. Box 1340
Shingle Springs, CA 95682

United Auburn Indian Community
Attn: Gene Whitehouse
Chairperson
10720 Indian Hill Road
Auburn, CA 95603

Tsi-Akim Tribe
Attn: Don Ryberg
1239 E. Main Street
Grass Valley, CA 95945

Konkow Valley Band of Maidu
Attn: Ronald Seek
1706 Sweem Street
Oroville, CA 95965

Strawberry Valley Rancheria
Attn: Cathy Bishop
P.O. Box 667
Marysville, CA 95901

Butte Tribal Council
Attn: Ren Reynolds
1671 Mt. Ida Road
Oroville, CA 95966

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APPENDIX A
AGENCY/TRIBAL CONSULTATIONS
AND PUBLIC NOTICE



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

02 APR 2014

MEMORANDUM FOR STATE HISTORIC PRESERVATION OFFICER
ATTN: DR. CAROL ROLAND-NAWI
Department of Parks and Recreation
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

FROM: 9 CES/CD
6451 B Street
Beale AFB, CA 95903-1708

SUBJECT: Construct New Distributed Common Ground System (DCGS) Operations Facility –
Beale AFB

1. In accordance with Section 106 of the National Historic Preservation Act (NHPA) and 36 CFR Part 800, the Department of the Air Force, Beale Air Force Base (BAFB), is advising you of a proposed undertaking that has the potential to affect historic properties. The undertaking is the "Construction of a New Distributed Common Ground System (DCGS) Operations Facility" at BAFB, in Yuba County (Attachment 1). This consultation combines a discussion of the Area of Potential Effect (APE) for the undertaking (per 36 CFR 800.4) with our finding of No Historic Properties Affected. Our finding is based on the facts of this undertaking and data from archaeological field surveys and other technical surveys of the project area.

2. BAFB is situated on the eastern margin of the Sacramento Valley, about 35 miles north-northeast of Sacramento. The base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. BAFB is home to the 548th Intelligence, Reconnaissance and Surveillance Group, which monitors feedback from surveillance aircraft. A new DCGS Operations Facility is required for an expanded mission supporting a Secretary of Defense directive for the continued growth of unmanned aircraft systems and associated intelligence processing, exploitation, and dissemination. At BAFB, this mission-growth directive requires adequate facilities and infrastructure to enable the expanded operation of Global Intelligence, Surveillance, and Reconnaissance (ISR) weapon systems.

3. In accordance with 36 CFR Section 800.4(a) (1), the APE is described below.

a. The demolition and construction APE is 9.27 acres (3.75 hectares) and roughly rectangular in shape (Attachment 2). The long axis is oriented east-west, and measures about 260 yards; the north-south dimension is about 165 yards. This parcel is within the highly developed central area of BAFB, located between B and C Streets and between 9th and 11th Streets.

PROUD TO BE.....MSG!

b. Overall, the ground surface slopes gently from B Street down to the southwest. The difference in elevation from B Street on the northeast, to the far end of the project area to the southwest is about 1 to 2 yards. The wetland and swales inside and beyond the project area drain towards the southwest into Hutchinson Creek, a natural feature that is oriented north-south. Geotechnical studies conducted within the project area found no evidence of buried cultural deposits, and encountered only soils identified as gravelly loams with high clay content overlying a hardpan. The ground surface is slightly undulating and appears to be disturbed.

c. The project APE is bounded on the north by existing Building 23260, on the east by B Street, on the south by a drainage ditch just north of 9th Street and on the west by existing technical pad 26235 and C Street. Attachment 3 shows the engineering drawing including landscaping. All excavations and construction will occur within the roughly rectangular APE shown in the attachments. The Areas of Direct Impact are more limited, within the APE, and correspond to the footings of the building and support facilities, as well as the areas within the APE where grading and construction will be needed to place new parking areas, sidewalks, and other civil improvements.

4. In accordance with NHPA Section 800.11(d) (1), the undertaking is described below. Attachment 3 offers a schematic overview of the undertaking.

a. The existing technical pad, a 6,500 square yard open concrete slab used to support portable equipment, a parking lot, and some sections of sidewalks will be demolished as shown in Attachment 2. This demolition and removal is required to prepare the area for new construction.

b. After removal of the technical pad and other civil improvements, the southern end of the APE will be graded to create a roughly level area for the new parking lot. Grading and earth moving for this undertaking is not likely to encounter any artifacts or intact archaeological deposits because of extensive construction disturbance that occurred in this area in the past.

c. The new DCGS facility, an 85,000 square foot, two-story building, will be constructed in the northern portion of the APE.

d. A parking lot with landscaping, streetlights and associated support facilities will be constructed in the southern portion of the APE. Trees will be planted in holes approximately 18" diameter and 24" deep. Footings for lighting poles will be approximately 48" deep.

e. Three backup generators and two 12,000-gallon diesel fuel tanks will be installed east of Building 23260. Electrical service and other utilities are available along B and C Streets directly adjacent to the project area. Connections for utility services to the new facilities will be made using either trenches less than 40 inches deep, or overhead connections to existing utility poles.

f. A 1,500 square yard bioretention area and landscaping enhancements are included in this project. The bioretention area is a shallow, square, pond-like feature designed to slow parking lot runoff before directing the runoff to a drainage ditch at the south end of the APE.

The parking lot will include landscaped drainage areas in the center to collect surface runoff and channel it into the bioretention area. Throughout the parking lot and around the new building, trees and shrubs will be planted. Concrete foundations for lighting poles and similar features will be installed. Sidewalks and automobile parking areas will require relatively shallow subgrade preparations and compacted fill.

g. A 12,000 square yard concrete technical pad will be installed southeast of the intersection of B and 10th Streets, to replace the technical pads being demolished and displaced by the new facility's footprint. This pad will provide operational space for satellite communications equipment providing ground link for DCGS operation, and for trailers used for training and communications.

h. Staging of equipment and construction materials will be restricted to existing streets, parking lots, and disturbed areas and will have no potential to damage historic properties.

5. In accordance with 36 CFR Section 800. 11(d) (2), the identification of historic properties is presented below.

a. In December, 2013, GeoEngineers completed a *Cultural Resources Survey and Evaluation Report*, after surveying seven noncontiguous areas, including the proposed APE (see Attachment 4 and 7). Their conclusion stated "As currently planned, the projects do not have the potential to cause an adverse effect on any of the known cultural resources that have been evaluated as part of this inventory or that have been previously recommended not eligible for listing in the NRHP. No historic properties have been identified within the boundaries of the noncontiguous APE covered by this inventory."

b. A previous survey, *Cultural Resources Inventory and Evaluation of 14,700 Acres on Beale Air Force Base, Yuba County, California* (Attachments 5 and 7), encompassed the project APE. Completed in 1994, this study included an extensive pedestrian survey of 14,700 acres of BAFB property, including the area around the project location. Although developed portions of the base were not surveyed due to substantial existing facilities and extensive, prior disturbance, the 1994 effort identified or re-recorded 82 archaeological sites, 24 isolated artifacts, and 110 isolated features. Of the sites, 18 are prehistoric, 63 are historical in age, and one contains historical-period and prehistoric components. And while the project area itself was not surveyed, no significant historic properties were identified in the vicinity of the APE. Also, the most recent update of the BAFB *Integrated Cultural Resources Management Plan* (dated 2012) identifies the "Main Base District" as having a "low" sensitivity for cultural resources due to disturbance from prior use and developments. As documented by the Department of the Air Force, no known historic properties exist in the vicinity of the project APE.

c. Recent photographs of the project area show extensive grassy ground cover and surface visibility of about 5 percent (Attachment 6). Although encountering archaeological deposits in the project APE is extremely unlikely, if anything is found, BAFB Cultural Resources Management (CRM) staff will immediately reopen consultation with the State Historic Preservation Officer (SHPO) and report all pertinent findings.

6. In accordance with 36 CFR Section 800.4(b), other historic property identification efforts are described below.

a. The Installation Management staff at BAFB are committed to creating and maintaining a viable and robust Native American consultation program. To date, BAFB has received no information suggesting that the proposed project area is within a Traditional Cultural Property (TCP), a resource gathering area, or holds any other importance to Native Americans.

b. BAFB CRM personnel have consulted frequently with interested tribes and Native American organizations. These efforts continue, and CRM staff are in consultation with local tribes about this undertaking and other planned projects. While BAFB CRM staff have determined that this undertaking will have no effect on historic properties, representatives of interested groups or tribes will be invited to monitor the project.

c. An Environmental Assessment (EA) is being prepared by BAFB Environmental staff and contractor personnel. Currently in draft status, the EA discusses the potential impacts of the planned DCGS project in detail. When completed, public versions of the EA will be provided, availability will be published in the local newspaper, and copies will be sent to local and regional regulators. The EA together with on-base and local media coverage is generally sufficient to elicit major concerns from the public. If any concerns or complaints are raised by the public regarding the treatment of historic properties that may be affected by the undertaking, CRM personnel at BAFB will consider the comments and consult with the SHPO, as appropriate.

7. According to 36 CFR Section 800.11(d) (3), BAFB finds that there will be "No Historic Properties Affected" by the proposed undertaking. There are no known archaeological sites in the vicinity of the proposed project. There is no evidence of buried prehistoric or historic deposits in the project area. In addition, there are no historic districts or defined visual resources in the area, and there are no known TCPs, resource gathering areas, or other features of Native American concern.

8. A summary of BAFB's conclusions are provided below.

a. The US Air Force, BAFB, proposes the "Construction of a New Distributed Common Ground System Operations Facility" (the undertaking), to be located within the developed area at BAFB. Two cultural resources surveys concluded that no historic properties, districts, or visual resources exist in the area. Ongoing consultation with local Native American parties has not identified any properties or issues of Native American concern. These facts indicate that there is very little chance that historic properties will be encountered during project construction. However, if unanticipated discoveries are made, BAFB personnel will reopen consultation with the SHPO and other interested parties, per the requirements of 36 CFR Part 800.

b. Based on the preceding, BAFB requests that the SHPO concur with our delineation of the APE, and with our finding of No Historic Properties Affected for the undertaking. If you have questions about the undertaking described in this letter, please contact Mr. Charles Carroll, at (530) 634-2738, charles.carroll.3@us.af.mil. You may also phone or email Mr. James Lang, at (530) 634-2642, james.lang.6@us.af.mil or contact the Regional Cultural Resource Manager, Dr. James Carucci at (707) 424-8625, james.carucci@us.af.mil.



GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

7 Attachments:

1. BAFB Regional Map
2. Proposed DCGS Facility Location and APE Maps
3. Project 95% Drawing (Planting Plan)
4. Excerpts from GeoEngineers 2013 Survey Report
5. Excerpts from Dames and Moore 1994 Survey
6. Photographs of the Proposed Action Site
7. Complete GeoEngineers 2013 and Dames & Moore 1994 Survey Reports (CD)

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
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April 22, 2014

In reply refer to: USAF_2014_0410_001

Gregory S. Capra, P.E., LEED AP
Deputy Base Civil Engineer
Department of the Air Force
Headquarters 9th Mission Support Group (ACC)
6601 B Street
Beale AFB, CA 95903-1708

Re: Section 106 Consultation for Construction of Distributed Common Ground System Operations Facility, Main Base District, Beale Air Force Base, Yuba County

Dear Mr. Capra:

Thank you for initiating consultation regarding the United States Air Force's (USAF) efforts to comply with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800.

The USAF has identified the undertaking as the construction of a distributed common ground system (DCGS) operations facility at Beale Air Force Base. According to their letter, the USAF is proposing to initiate the following activities in support of this undertaking:

- Demolition of a 6,500 square yard concrete slab and associated sidewalk segments;
- Grading and construction of a parking lot including light standards and landscaping;
- Construction of a two-story, 85,000 square foot building;
- Installation of backup diesel generators;
- Construction of a 1,500 square yard bio-detention area and landscaping;
- Installation of a 12,000 square yard concrete pad to support DCGS operations.

Identification efforts including a records search and pedestrian survey found no previously recorded archeological historic properties within the project area and it is my understanding the USAF has conducted appropriate tribal consultation for this undertaking.

The USAF is now requesting my concurrence with their determination of no historic properties affected pursuant to 36 CFR Part 800.4(d)(1). After reviewing the information provided I concur with the USAF's determination. Please be advised that under certain circumstances such as unanticipated discovery or a change in project description, the USAF may have additional responsibilities for this undertaking under 36 CFR Part 800. If you have any questions please contact Ed Carroll of my staff at Ed.Carroll@parks.ca.gov / (916) 445-7006.

Sincerely,

A handwritten signature in black ink that reads "Carol Roland-Nawi, Ph.D.".

Carol Roland-Nawi, PhD
State Historic Preservation Officer



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

02 APR 2014

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE

ATTN: MR. MARK LITTLEFIELD

2800 Cottage Way, Room W2605

Sacramento CA 95825-1846

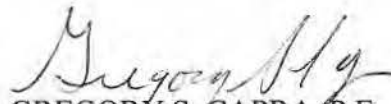
FROM: 9 CES/CD

6451 B Street

Beale AFB CA 95903-1708

SUBJECT: Formal Consultation – Construct New Distributed Common Ground System (DCGS)
Operations Facility, Beale AFB

1. The intent of this letter is to initiate Formal Consultation under Section 7(a)(2) of the Endangered Species Act of 1973, as amended, for the Construct New DCGS Operations Facility at Beale AFB, CA. Beale AFB has a Programmatic Biological Opinion (PBO) from the USFWS (Oct 2012; Reference # 81420-2009-F-1118-1); this project will be completed in accordance with and appended to the Special Area Management Plan (SAMP) PBO. A Biological Assessment (BA) was prepared (Attachment 1) based on the PBO level 3 recommended coordination (may affect, likely to adversely affect).
2. This site was visited together with Kellie Berry and Lily Douglas (6 November 2013). This project has the potential to indirectly impact 0.132 acres of vernal pool tadpole shrimp (*Lepidurus packardii*), or vernal pool fairy shrimp (*Branchinecta lynchi*) habitat. To compensate for this, Beale AFB is prepared to preserve 0.396 acres (3:1) of sensitive shrimp habitat. Additional compensation for fill of Waters of the U.S. will be completed in agreement with the USACE. We do not believe this project is likely to adversely affect other federally-listed species that occur in the general region of Beale AFB.
3. During the site selection process, the available building site with the requisite space and security level was chosen. This project is slated to occur in the summer of 2015.
4. Please review the enclosed documents and contact Jamie Visinoni at (530) 634-4451 or jamie.visinoni.1@us.af.mil if you need additional information.


GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

Attachment:

Programmatic Formal Consultation – Construct DCGS Operations Facility

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**CONSTRUCT NEW DISTRIBUTED COMMON GROUND
SYSTEM (DCGS) OPERATIONS FACILITY**

AT

BEALE AIR FORCE BASE, CALIFORNIA

**Abbreviated Biological Assessment
Submitted under the Programmatic Biological Opinion
(Reference number 81420-2009-F-1118-1)**

April 2014



PREPARED BY:

**BEALE AIR FORCE BASE
9 CES/CEIE
6601 B STREET
BEALE AIR FORCE BASE, CA 95903-1712**

CONTACT:

**MS. JAMIE VISINONI
(530) 634-4451**

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LIST OF ABBREVIATIONS / ACRONYMS

| | |
|------------|--|
| 9 CES/CEIE | 9th Civil Engineer Squadron/Environmental Section |
| 9 IS | 9th Intelligence Squadron |
| AFB | Air Force Base |
| AST | Aboveground Storage Tank |
| AT/FP | Anti-terrorism/force protection |
| BA | Biological Assessment |
| BMP | Best Management Practice |
| BO | Biological Opinion |
| DCGS | Distributed Common Ground System |
| DGS | Distributed Ground Station |
| Di | Ditch |
| DPOC | DCGS PEDS Operation Center |
| ESA | Endangered Species Act |
| FE | Federally Endangered |
| FT | Federally Threatened |
| ft | feet |
| ISR | Intelligence, Surveillance, and Reconnaissance |
| LiDAR | Light Detection and Ranging |
| PBO | Programmatic Biological Opinion |
| PEDS | Processing, Exploitation, and Dissemination System |
| SAMP | Special Area Management Plan |
| SAT-COM | Satellite Communication |
| SCIF | Sensitive Compartmented Information Facility |
| SF | square foot |
| Sw | Swale |
| TMET | Transportable Medium Earth Terminal |
| USACE | U.S. Army Corps of Engineers |
| USFWS | U.S. Fish and Wildlife Service |
| VP | Vernal Pool |

EXECUTIVE SUMMARY

This Biological Assessment (BA) evaluates the potential effects of the 9th Reconnaissance Wing's proposal to construct a new Distributed Common Ground System (DCGS) Operations Facility, associated parking lot and support facilities at Beale Air Force Base (AFB), California, on species that are regulated by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (ESA). This is an abbreviated BA that we expect will be evaluated under the Beale AFB Programmatic Biological Opinion (PBO) (Reference number 81420-2009-F-1118-1). It proposes avoidance, minimization, and compensation measures consistent with the PBO that are intended to avoid, reduce, or mitigate for potential impacts (i.e., adverse effects as defined under ESA) of DCGS Operations Facility, associated parking lot and support facilities construction activities that may have an effect on federally-listed species.

The project area for the DCGS Operations Facility, associated parking lot and support facilities construction is located within the Main Base area of Beale AFB, located in Yuba County, California, on the Wheatland 7.5' U.S. Geological Survey topographic quadrangle. The site is disturbed annual grassland containing wetland/vernal pool habitat. It is bordered by paved roadways.

In 2009, Light Detection and Ranging (LiDAR) was used to identify potential wetland features. The uneven landscape left from historical development led to numerous wetland features being falsely identified by LiDAR. Previous experiences with projects on Beale AFB lead the biologists to believe that field conditions may not match the LiDAR map. As a result, seven vernal pools, two ditch, and two swales originally identified by LiDAR were further investigated (e.g., examined for hydric soils, vegetation, and evidence of ponding as well as contours, slope, and depth) by Beale AFB biologists during the winter of 2014 to determine if they could be classified as wetland features within the project boundary. Field observations confirmed the presence of some wetland features originally identified by LiDAR and dismissed others. There are known vernal pool fairy shrimp (*Branchinecta lynchi*) located approximately 94-135 feet (ft) to the west of the proposed project footprint. The nearest documented shrimp locations are:

- ◆ Vernal pool fairy shrimp (*Branchinecta lynchi*) – 94-135 ft (2008)
- ◆ Vernal pool tadpole shrimp (*Lepidurus packardii*) – 1,930 ft (2008)

The Proposed Action would indirectly impact approximately 0.132 acres of vernal pool tadpole shrimp (*Lepidurus packardii*), or vernal pool fairy shrimp (*Branchinecta lynchi*) habitat. The implementation of the proposed action has the potential to adversely affect the federally-listed as threatened vernal pool fairy shrimp (*B. lynchi*) and the vernal pool tadpole shrimp (*L. packardii*). Compensation measures are proposed in this document for the potential mortality, disturbance, habitat degradation, and other potential adverse effects to the vernal pool fairy shrimp.

1.0 PURPOSE AND NEED

Beale AFB's existing DCGS facility's operations capabilities are inhibited due to the size of the facility. Adequate space is required for the expanded Distributed Ground Station (DGS) mission supporting the Secretary of Defense directive for continued growth of unmanned aircraft systems and associated intelligence processing, exploitation, and dissemination. The mission growth pertaining to Beale AFB requires an adequate DGS ground platform (facilities and infrastructure) to enable expanded operation of the Global Intelligence, Surveillance, and Reconnaissance (ISR) weapon system. In addition to meeting the expanded DCGS mission growth, the new building would accommodate the relocation of the DCGS Processing, Exploitation, and Dissemination System (PEDS) Operation Center (DPOC) operation, ISR Emergency Center, and Combat Logistics System training functions all within the same facility.

The proposed new DCGS Operations Facility, associated parking lot, and support facilities would be constructed to comply with U.S. Air Force provisions for location and operation of Sensitive Compartmented Information Facilities (SCIFs). Use of this new facility would allow Beale AFB to expand DGS mission operation capabilities. The associated parking lot would accommodate the personnel growth and adhere to anti-terrorism/force protection (AT/FP) standoff requirements.

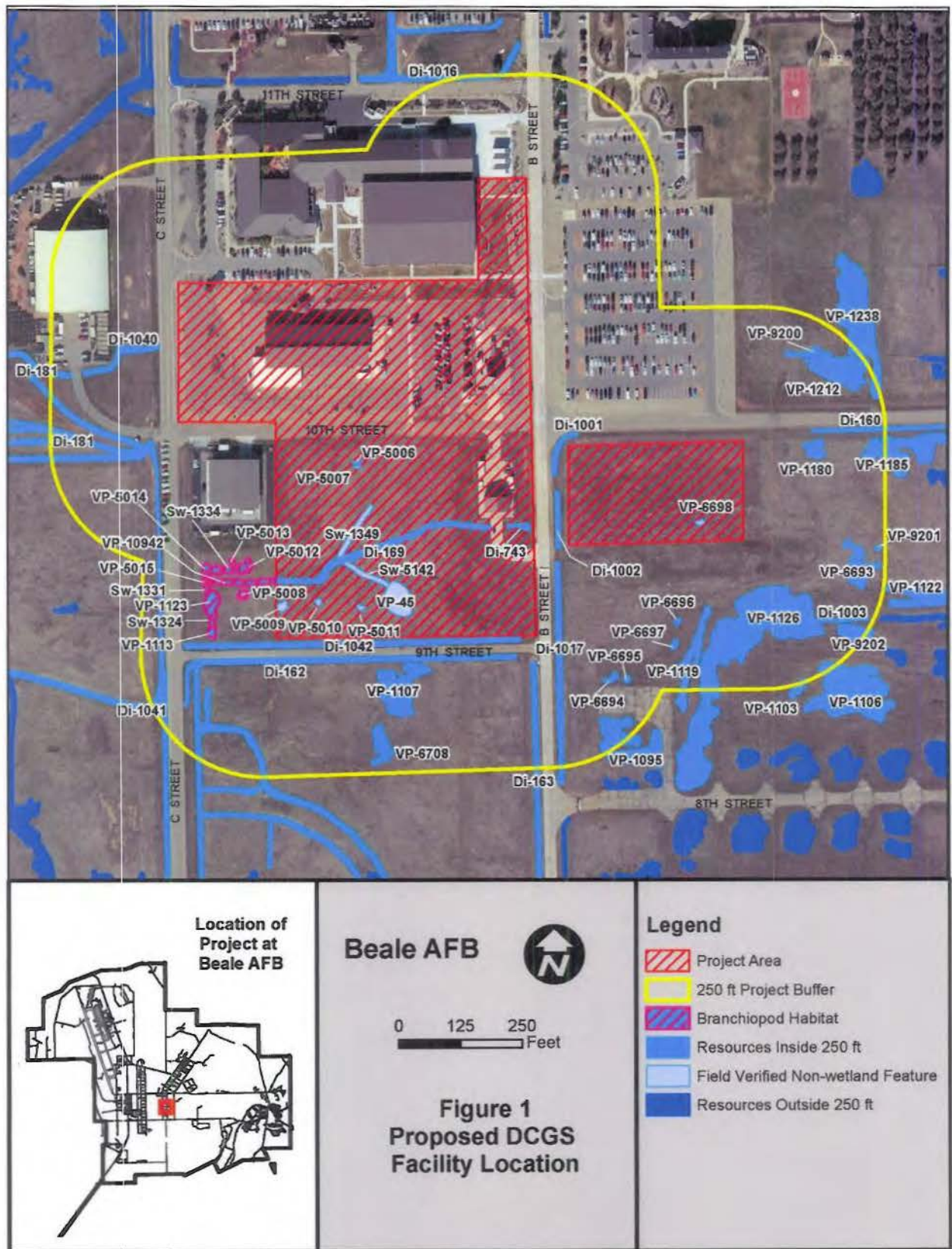
2.0 PROJECT DESCRIPTION

The Proposed Action would involve the construction and operation of a new DCGS Operations Facility, associated parking lot and support facilities, including sidewalks, emergency generators, and landscaping, and the relocation of the transportable medium earth terminal/ satellite communication (TMET/SAT-COM) facility to the northwest corner of 10th and B Streets on Beale AFB (Figure 1). The proposed facility would be within the main base area of Beale AFB between 9th and 11th Streets and B and C Streets. The new facility would be constructed on the location of the current Tech Pad; the associated parking lot would be constructed just south of 10th Street. The new building would be connected to existing electrical, natural gas, water, and sanitary sewer systems and lines on the project site. Construction activities are anticipated to be completed within an 18- to 24-month time period.

The project consists of the following:

- ◆ Construction of a new 85,000 square foot (SF) DCGS Operations Facility including command sections, operations floor, mission briefing room, training area, and back shop.
- ◆ Installation of two 12,000-gallon diesel aboveground storage tanks (ASTs).
- ◆ Installation of three backup generators.
- ◆ Installation of fencing around the generators and ASTs and around the mechanical yard.
- ◆ Removal of the approximately 58,500 SF tech pad.
- ◆ Construction of a mechanical yard.
- ◆ Removal of an existing parking lot.
- ◆ Construction of a new 300-space parking lot.
- ◆ Removal of existing sidewalks.
- ◆ Construction of new sidewalks.

- ◆ Construction of a bioretention area, approximately 27,000 cubic feet, capable of holding up to 201,974 gallons of water. The bioretention area is designed to slow sheet flow off the parking lot during storm events and trap particulates before the water enters the drainage on the southern end of the site.
- ◆ Construct east-west drainage system under the new parking lot for rerouting of water (approximately 1,300 linear feet).
- ◆ Relocation of the TMET/SATCOM pad and associated parking to a new location (approximately 70,600 SF) at the northwest corner of 10th and B Streets.
- ◆ The areas of existing pavement on the site that would not be removed would be reused in their present state.
- ◆ The total area that would be disturbed by proposed construction activities is estimated to be 12.17 acres.



2.1 Project Site Selection and Planning

Beale AFB considered a number of alternative sites for construction of the DCGS Operations Facility, associated parking lot and support facilities, several of which were dismissed. One option considered would have expanded and renovated the existing DCGS Operations Facility. Because of site constraints, expansion of the existing facility would not reach the required 85,000 SF and mission-related functions would continue to be segregated from the main core functions.

A second option considered included demolishing and replacing the existing DCGS Operations Facility. Because this alternative would impact the ongoing mission, and because the U.S. Air Force recently invested a large sum of money in renovations to the existing facility, this alternative was eliminated from consideration.

For all of these reasons, the current proposed site was chosen as the best option for construction of the DCGS Operations Facility. The site is large enough to consolidate all facilities involved in processing of a secure data stream within a secure compound. These data are shared between facilities and therefore, in order to maintain the necessary level of security, the new facility must be co-located with the existing facility. In addition, due to the nature of the work conducted in the DCGS and hours of operation, the parking lot must be in close proximity. The proposed project site is located within the region designated for development by the Special Area Management Plan (SAMP) and agreed upon by USFWS in the Programmatic Biological Opinion (PBO) (October 2012).

3.0 AFFECTED ENVIRONMENT

The project site is disturbed annual grassland in a developed area. The northern portion of the site is currently occupied by the 9 IS tech pad and SAT-COM facility. The southern portion of the site is previously developed and now currently vacant land. The project site is located within an area designated as Low Integrity/Developed in the Beale AFB SAMP.

3.1 Site Geology

The project area soil primarily consists of one soil series, the Redding-Corning Complex (USDA 1985). Both series are gravelly loam soils found on fan terraces. These soils form from mixed alluvium, have a very low water-holding capacity and very slow to slow permeability, and are flat to gently sloping (0 to 3 percent). The Redding soil series in Yuba County is gravelly loam over gravelly clay loam starting at approximately 6 inches, to clay at 19 inches, to a duripan from 20 to 40 inches. The Redding soils are moderately deep to duripan, moderately well drained soil. The Corning soil series in Yuba County is gravelly loam over gravelly clay starting at 24 inches and no restrictive layer. The Corning soil consists of very deep, well-drained soil.

The topography of the area is somewhat flat with a slight slope descending from the northeast to the southwest. Hydrologic connections between wetland features in these areas, when present, generally follow this slope. The overall drainage of the project area generally flows off the project site.

3.2 Wetland Features

In 2009, Light Detection and Ranging (LiDAR) was used to identify potential wetland features. The uneven landscape left from historical development led to numerous wetland features being falsely identified by LiDAR. Previous experiences with projects on Beale AFB lead the biologists to believe that field conditions in this part of the base may not match the LiDAR map. Biologists from the Beale AFB Environmental Office evaluated the wetlands within the project boundaries in the winter of 2014. Presence or absence of standing water was noted, along with presence of wetland indicator plants and evidence of hydric soils. Some wetland features originally identified by LiDAR were not identified as wetlands during the site visit. As a result the western portion of one ditch, (Di 169, a portion renamed as VP 10942) originally identified by LiDAR, was found to have evidence of sufficient water-restricting layers (ponding after storm events and/or evidence of hydric soils), depth, and evidence of hydrophytic vegetation to be classified as a wetland feature within the project boundary. Table 1 lists the wetland features identified by LiDAR that were field verified and did not contain evidence of wetland characteristics. These wetlands have been removed as wetland features from the analyses. Table 2 summarizes the justification for no impact to all wetland features both within the project footprint (Di 743) and within 250 ft of the project's ground disturbing area.

Table 1. Wetland Features Originally Classified by LiDAR within the DCGS Operations Facility Project Area that are not Wetland Features

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|--------------------------------|---|---|----------------------------------|---|
| VP 45 | Field Verified Non-Vernal Pool | within | N | 0 | Upland vegetation is dominant including medusahead (<i>Taeniatherum caput-medusae</i>), dove weed (<i>Croton setigerus</i>), star thistle, (<i>Centaurea solstitialis</i>), and <i>Briza minor</i> . The ground is sloped and there is no change in depth with the surrounding grassland. Hydrophytic vegetation and hydric soils were absent in VP ID # 45. This feature does not support habitat for vernal pool species. |
| VP 5006 | Field Verified Non-Vernal Pool | within | N | 0 | This small feature is not suitable branchiopod habitat as it is poorly defined, and lacks hydric soils and vernal pool vegetation. The depression is dominated by upland vegetation of primarily medusahead. |

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|------------------------------------|---|---|----------------------------------|---|
| VP 5007 | Field Verified Non-Vernal Pool | within | N | 0 | This small feature is not suitable branchiopod habitat as it is poorly defined, and lacks hydric soils and vernal pool vegetation. The depression is dominated by upland vegetation of primarily medusahead. |
| VP 5009 | Field Verified Non-Vernal Pool | within | N | 0 | This feature is in a highly-disturbed area with soil that appears to be fill material (no evidence of hydric soils). It does not hold water and contains upland vegetation primarily of medusahead and <i>Erodium</i> sp. |
| VP 5010 | Field Verified Non-Vernal Pool | within | N | 0 | This pool is in a highly-disturbed area with soil that appears to be fill material (no evidence of hydric soils). The pool does not hold water and contains upland vegetation primarily of medusahead. |
| VP 5011 | Field Verified Non-Vernal Pool | within | N | 0 | This poorly-defined feature is in a highly-disturbed area. It has no evidence of hydric soils and does not hold water. It contains upland vegetation, primarily medusahead. |
| VP 6698 | Field Verified Non-Vernal Pool | within | N | 0 | Hydrophytic vegetation, hydric soils and sources of hydrology were absent at the location of VP ID #6698. These features do not support habitat for vernal pool species. |
| Sw 1349 | Field Verified Non-wetland Feature | within | N | 0 | This swale is not suitable branchiopod habitat as it is poorly defined and lacks vernal pool vegetation. The feature does not hold water as it is slightly sloped and is dominated by medusahead. |
| Sw 5142 | Field Verified Non-wetland Feature | within | N | 0 | This swale is not suitable branchiopod habitat as it is poorly-defined and lacks vernal pool vegetation. The feature does not hold water as it is slightly sloped and is dominated by medusahead. |

*VP = Vernal Pool, Sw = Swale

Table 2. Wetland Features Not Impacted by the Proposed DCGS Operations Facility

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|------------------|----------------------|--|--|---|---|
| 160 | Di | Up-slope | N | 141 | Ditch 160 is located up slope from the project area. Strict adherence to BMPs will ensure this ditch will not be impacted. |
| 162 | Di | Down-slope | N | 39 | This drainage ditch is separated from project by 9th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |
| 163 | Di | Up-slope | N | 53 | This drainage ditch is separated from project by 9 th Street and is up slope from the project. Its physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |
| 181 | Di | Down-slope | N | 87 | This drainage ditch is separated from project by C Street. Its distance and physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |
| 743 | Di | Up-slope | N | 0 | This small ditch contains sedges and other wetland vegetation, but no vernal pool vegetation. It conveys flow. It is highly unlikely to support sensitive shrimp species. It will not be filled although it is within the Proposed Action Area. |
| 1001 | Di | Down-slope | N | 14 | This is a roadside drainage ditch that conveys flow outside the footprint of the TMET/SATCOM building. It is shallow and contains upland vegetation. Strict adherence to erosion and sediment control BMPs will ensure the ditch is not impacted. |

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|---------------|---|---|----------------------------------|--|
| 1002 | Di | Down-slope | N | 17 | This is a roadside drainage ditch outside the footprint of the TMET/SATCOM building. It is shallow and contains upland vegetation. It conveys flow and does not pond. Strict adherence to erosion and sediment control BMPs will ensure the ditch is not impacted. |
| 1003 | Di | Up-slope | N | 219 | Ditch 1003 is located up slope from the project area. Strict adherence to BMPs will ensure this ditch will not be impacted. |
| 1016 | Di | Up-slope | N | 202 | This roadside drainage ditch is separated from project by 11 th Street and is up slope from the project. Its physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |
| 1017 | Di | Down-slope | N | 40 | This is a roadside drainage ditch outside the footprint of the TMET/SATCOM building. It conveys flow and does not pond. Strict adherence to erosion and sediment control BMPs will ensure the ditch is not impacted. |
| 1040 | Di | Down-slope | N | 42 | This drainage ditch is separated from project by C Street. Its distance and physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |
| 1041 | Di | Down-slope | N | 69 | Drainage ditch 1041 is a roadside ditch separated from the project by C Street. Its distance and physical separation from the project site together with strict adherence to BMPs will ensure this ditch will not be impacted. |

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|---------------|---|---|----------------------------------|--|
| 1042 | Di | Down-slope | N | 4 | This is a vegetated, poorly-defined roadside drainage ditch on the project boundary. It contains upland vegetation, but no vernal pool vegetation. It is highly unlikely to support sensitive shrimp species. Strict adherence to erosion and sediment control BMPs will ensure the ditch is not impacted. |
| 1095 | VP | Up-slope | N | 353 | This vernal pool is physically separated from the project area by B Street, an old cracked, concrete pad, and one vegetated open drainage. Strict adherence to BMPs will ensure the pool is not impacted. |
| 1103 | VP | Up-slope | N | 312 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 1106 | VP | Up-slope | N | 301 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 1107 | VP | Down-slope | N | 51 | This pool is separated from project by 9 th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. |
| 1119 | VP | Up-slope | N | 134 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 1122 | VP | Up-slope | N | 303 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|---------------|---|---|----------------------------------|---|
| 1126 | VP | Up-slope | N | 104 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is up slope of the project. |
| 1180 | VP | Up-slope | N | 122 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is up slope of the project. |
| 1185 | VP | Up-slope | N | 241 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is up slope of the project. |
| 1212 | VP | Up-slope | N | 208 | This pool is separated from project by 10 th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. |
| 1238 | VP | Up-slope | N | 280 | This pool is separated from project by 10 th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. |
| 6693 | VP | Up-slope | N | 207 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 6694 | VP | Up-Slope | N | 263 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 6695 | VP | Up-slope | N | 271 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |

| ID Number | Wetland Type* | Feature's Relative Elevation to Project | Hydrologically Connected to Project Area? (Y, N, ?) | Nearest Distance to Project (ft) | No Impact Justification |
|-----------|---------------|---|---|----------------------------------|---|
| 6696 | VP | Up-slope | N | 154 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 6697 | VP | Up-Slope | N | 200 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 6708 | VP | Equal | N | 181 | This pool is separated from project by 9 th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. |
| 9200 | VP | Up-slope | N | 192 | This pool is separated from project by 10 th Street and a vegetated drainage. Its physical separation from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. |
| 9201 | VP | Up-slope | N | 270 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |
| 9202 | VP | Up-slope | N | 264 | This pool's distance from the project site together with strict adherence to BMPs will ensure this pool will not be impacted. The pool is upstream of the project. |

*VP = Vernal Pool, Di = Ditch

3.3 Waters of the United States

The proposed project parking lot site to the south contains a small jurisdictional seasonal drainage that runs east to west. This seasonal drainage would be graded, filled, and paved over, and the water would be rerouted into underground drain piping that runs east to west under the new parking lot. A preliminary jurisdictional wetland determination was conducted using LiDAR in 2009. To calculate impacts to jurisdictional waters of the U.S., only those areas that would be directly impacted by filling, grading, or compacting were assessed. A total of 0.002 acre of wetlands (calculated below the estimated ordinary high water mark) would be directly impacted

by the Proposed Action. A Section 401 water quality certification from the California Regional Water Quality Control Board and a Section 404 permit from the U.S. Army Corps of Engineers (USACE) will be obtained prior to commencing construction-related activities. The project will be performed under the statewide storm water construction permit because more than 1 acre of land would be disturbed. Table 3 presents the wetland features both within the Proposed Action Area and the 250-ft buffer that will be impacted by the Proposed Action.

Table 3. Impacted Wetland Features within the DCGS Operations Facility Project Area and Buffer Area

| ID and Wetland Type* | Impact Acreage | Potential Branchiopod Habitat | Description and Justification |
|-----------------------------|-----------------------|--------------------------------------|---|
| Di 169 | 0.002 | N | The eastern portion is shallow, poorly-defined, and is either scoured or contains upland vegetation (primarily medusahead). This ditch is hydrologically-connected (provides flow) to vernal pools with known endangered species and sensitive shrimp species have been documented in the western end of the ditch. The ditch will be filled. |
| VP 1113 | 0.007 | Y | This small vernal pool supports vernal pool vegetation and holds water long enough to be potential sensitive shrimp habitat. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 1123 | 0.029 | Y | This vernal pool supports vernal pool vegetation and holds water long enough to be potential sensitive shrimp habitat. Vernal pool fairy shrimp and linderiella fairy shrimp have been documented in this pool. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| Sw 1324 | 0.004 | Y | This swale is hydrologically-connected to VP 1113 and 1123 and is dominated by hydric vegetation. The swale is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| Sw 1331 | 0.004 | Y | This swale is hydrologically-connected to VP 5015 and 1123 and is dominated by hydric vegetation. The swale is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |

| ID and Wetland Type* | Impact Acreage | Potential Branchiopod Habitat | Description and Justification |
|----------------------|----------------|-------------------------------|--|
| Sw 1334 | 0.007 | Y | This swale is very small and hydrologically-connected to VP 5012 and 5014 and has evidence of hydric vegetation. The swale is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 5008 | 0.006 | Y | Although not hydrologically connected to the vernal pools in the area that contain listed species, this small, well-defined, vernal pool supports hydric vegetation and holds water long enough to be potential sensitive shrimp habitat. Shrimp sampling occurred but no species were documented. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 5012 | 0.012 | Y | This vernal pool supports vernal pool vegetation and holds water long enough to be potential sensitive shrimp habitat. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 5013 | 0.012 | Y | Although not hydrologically-connected to the vernal pools in the area that contain listed species, this small vernal pool supports hydric vegetation and holds water long enough to be potential sensitive shrimp habitat. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 5014 | 0.016 | Y | This small vernal pool supports vernal pool vegetation and holds water long enough to be potential sensitive shrimp habitat. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |
| VP 5015 | 0.004 | Y | This vernal pool supports vernal pool vegetation and holds water long enough to be potential sensitive shrimp habitat. Vernal pool fairy shrimp and linderiella fairy shrimp have been documented in this pool. The pool is located down slope of the project. Rerouting the drainage from the Proposed Action will have an indirect impact on the water source for the vernal pools. |

| ID and Wetland Type* | Impact Acreage | Potential Branchiopod Habitat | Description and Justification |
|----------------------|----------------|-------------------------------|--|
| VP 10942 | 0.031 | Y | Originally the western portion of Di 169, this newly designated VP holds water and contains coyote thistle, algae, and hydric vegetation. It is hydrologically connected to other vernal pools containing known sensitive species. |

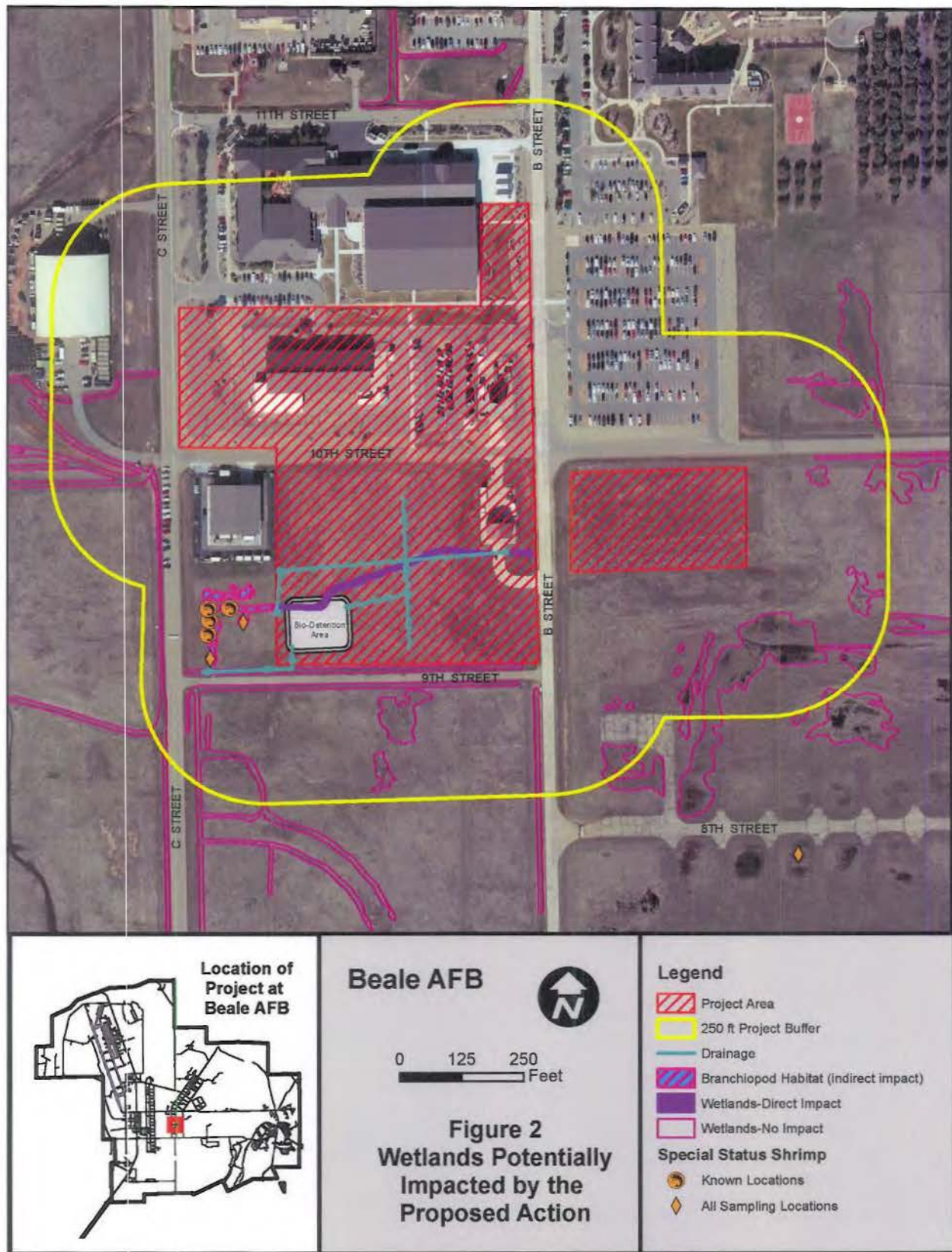
*VP = Vernal Pool, Sw = Swale, Di = Ditch

3.4 Threatened & Endangered Species' Habitat

There are four animal species federally-listed under the ESA discussed in the PBO that are found or potentially could be found at Beale AFB. Two of the species occur in vernal pools. The federally-listed threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and the federally-listed endangered vernal pool tadpole shrimp (*Lepidurus packardii*) are known to occur in the area. The former species was found approximately 94-135 ft to the west of the footprint of the proposed parking lot during dry-season shrimp sampling for Beale AFB in November 2006 (EM Assist, 2006; Figure 2). The nearest *B. lynchi* specimen recorded (2008) was located outside the project area (1,930 feet east of the proposed TIMET/SATCOM). The presence of suitable habitat for the species and documented occurrences suggests that the species is likely to persist on the Beale AFB properties given current conditions. A more thorough discussion of the sensitive shrimp species occurrence and habitat requirements on Beale AFB is contained in the PBO (Reference number 81420-2009-F-1118-1).

4.0 ANALYSIS OF EFFECT OF THE ACTION

In accordance with the PBO, direct affects are "caused by the action during the time that the action is taking place. Direct effects can occur within the entire action area, including the project footprint and beyond." While indirect effects "are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action, but would still be within the action area." The Proposed Action would indirectly impact approximately 0.132 acres of potential branchiopod habitat (Figure 2). All field verified (by Beale AFB biologists) wetlands, drainages, and vernal pools within 250 ft of the proposed project site would be protected by implementation of an Erosion Control Plan and the Best Management Practices (BMPs) from the PBO outlined in Section 5.0 to eliminate adverse effects.



4.1 Indirect Effects

4.1.1 Habitat Fragmentation and Hydrologic Separation

Vernal pools filled from the proposed parking lot will create hydrological separation from the pools south of building 26235 that are known to contain special status species. A drainage system will be placed under the parking lot to assist with the flow of water but may alter the hydrology of the area. In addition, the catch basins may reduce the amount of water retained in the separated vernal pools. A total of 0.132 acres of potential branchiopod habitat will be indirectly affected by the fragmentation of Di 169 and the potential change in the hydrology of the vernal pool complex (Figure 3).

4.1.2 Disruption to Vernal Pool Complex Hydrology

The Proposed Action has the potential to indirectly impact the hydrology of the vernal pools located on the northeast corner of the intersection of C and 9th Streets. The proposed Project parking lot site to the south contains a small jurisdictional, seasonal drainage that runs east to west and feeds the vernal pools at the northeast corner of C and 9th Streets. A portion of this seasonal drainage would be graded, filled, and paved over, and the water would be rerouted into underground drain piping that runs east to west under the new parking lot. The hydrological connection between the vernal pools and the drainage may potentially be impacted due to Proposed Action activities, both because the vernal pools are lower in elevation than the work site and because rerouting the drainage may have an impact on the water source for the vernal pools.

4.2 Cumulative Effects

Cumulative effects, are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR §402.02). All future activities that occur on the Beale AFB properties are Federal activities that will be reviewed under Section 7 of the Act, either through the PBO consultation, or through future Beale AFB consultations, therefore, there will be no cumulative effects as a result of State or private activities within the action area.

5.0 AVOIDANCE, MINIMIZATION AND CONSERVATION MEASURES

The Environmental Office has identified which avoidance, minimization, and compensation measures from the PBO should be implemented as part of the proposed action. Our assessment of the potential impacts of the proposed action is based on the implementation of these measures (Table 4).

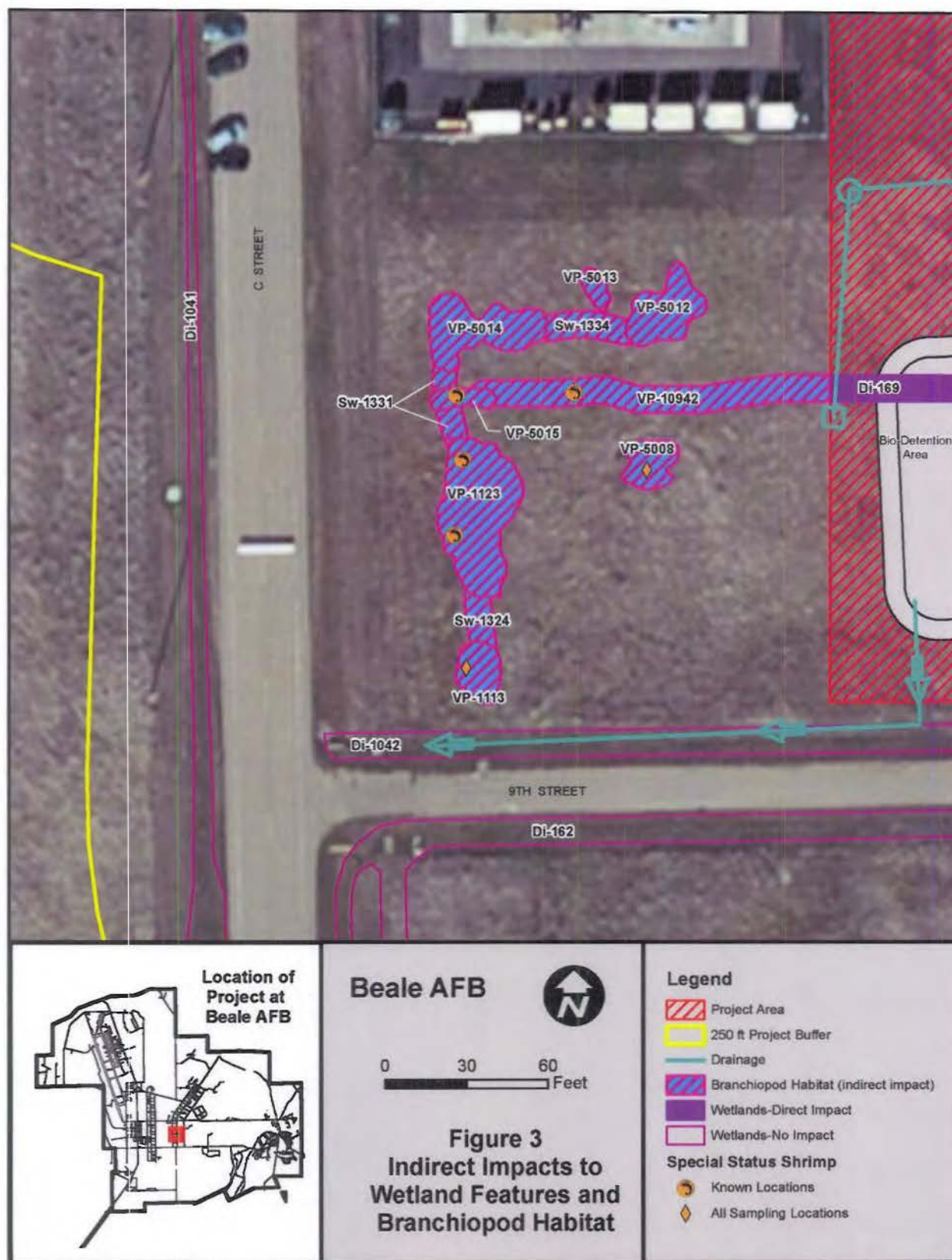


Table 4. Avoidance and Minimization Measures (from the PBO)

| General Avoidance and Minimization Measures | |
|--|---|
| 1. Preconstruction Surveys | A Service-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally-listed species may be present prior to the start of construction. These surveys will be conducted 2 weeks prior to the start of construction activities in any sensitive habitat. If any federally-listed species are found during the preconstruction surveys, the Service-approved biologist will contact the Service to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work. |
| 2. Biological Monitor | A Service-approved biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with the avoidance and minimization measures required to protect federally-listed species and their habitats. If federally-listed species are found that are likely to be affected by work activities, the Service-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally-listed species. If the biological monitor exercises this authority, he/she must notify the Service by telephone and letter within 1 working day. |
| 3. Environmental Awareness Training | Environmental awareness training will be provided for all construction personnel working on Beale AFB. Training will be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program will consist of a briefing on environmental issues relative to the proposed project. Training will be conducted by a Service-approved biologist. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally-listed species that may occur in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Act, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies. |
| 4. Invasive Species | A Service-approved biological monitor will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible (see Beale AFB <i>Integrated Natural Resource Management Plan</i>). When practicable, invasive exotic plants identified in the project area will be removed. |
| 5. Service Notification | Beale AFB will track the area of impact resulting from projects covered under the SAMP PBO and will submit an annual report to the Service summarizing these acreages on a project by project basis . |
| 6. Erosion Control | All wetlands/drainages/vernal pools will have erosion control measures (straw waddles, hay bales, silt fencing) installed when work is within 250 ft of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment and/or construction workers access those protected areas. |

| | |
|---|---|
| 7. Reseeding | All areas of ground disturbance or exposed soil will be reseeded with a native "weed free" seed mix approved by the Beale AFB environmental office. |
| 8. Mowing | Mowing in and around vernal pool crustacean habitat after seed dispersal and during the dry season is considered a not likely to adversely affect action. |
| 9. Exclusionary Period | No work will be conducted within 250 ft of vernal pools and streams between November 1st and May 1st, unless specifically approved by the Beale AFB environmental office. |
| 10. Demarcation of Sensitive Areas | Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally-listed species (i.e., vernal pool crustaceans), will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an <i>environmentally sensitive area</i> . The contractor will remove all fencing, stakes and flagging within 60 days of construction completion. |
| 11. Off-Road Travel | Off-road travel outside of the demarcated construction boundaries will be prohibited. |
| 12. Demarcation of Work and Staging Areas | Beale AFB (or the contractor to Beale AFB) will provide all materials to stake and flag boundaries of the work area. Beale AFB will coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans or their habitat. The contractor will remove all fencing, stakes and flagging within 60 days of construction completion. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. |
| 13. Report Kills/Injuries | Any worker that inadvertently kills or injures a federally-listed species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform the 9th Civil Engineer Squadron/Environmental Section (9 CES/ CEIE). The 9 CES/CEIE will verbally notify the Sacramento Fish and Wildlife Office within 3 days and will provide written notification of the incident within 5 days. |
| 14. Fueling and Servicing in Designated Areas | Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 250 ft from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. |
| 15. Garbage Removal | During construction activities, all trash that may attract predators will be properly contained, removed from the work site daily, and disposed of. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion. |
| 16. Disposal of Excavated Soil | All soil excavated during construction occurring near vernal pool wetlands will be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil. |

| | |
|--|--|
| 17. Minimization of Access Routes etc. | The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of wetland/drainage areas. |
| 18. Speed Limits | All vehicle operators will follow the posted speed limit on paved roads and a 20-mile per hour speed limit on unpaved roads. |
| 19. Pets/Firearms | No pets or non-military firearms will be allowed in the project area. |
| 20. Pesticide Use | The Service has reviewed and concurred with the Beale AFB Integrated Natural Resources Management Plan, which includes a description of any pesticide use on Beale AFB property. Any pesticide use related to projects appended to this PBO will follow those guidelines. |
| 21. Trenches | No trenches will be left open at the end of the day; trenched areas will be compacted and restored to normal grade. Excavated trenches will be revegetated. |
| Avoidance and Minimization Measures for Vernal Pool Crustaceans | |
| 22. Best Management Practices | BMPs will be implemented to prevent sediment from entering avoided vernal pools that are located within 250 ft, or have a hydrologic connection to the project site, including but not limited to, the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal. |
| 23. Biological Monitor | A Service-approved biologist from 9 CES/CEIE will monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the Proposed Action. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources. |
| 24. Environmental Awareness Training | A Service-approved biological monitor from 9 CES/CEIE will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the Proposed Action project sites. Awareness training will cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and will include the penalties for violating the provisions of the Act. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews. |
| 25. Demarcation of Habitat | Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor. |
| 26. Work and Staging Boundaries | All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool areas. |
| 27. Dust Control | All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools. |

Impact acreage and associated compensation for federally-listed shrimp species habitat (not within Beale Core Recovery Area) is listed in Table 5. The filling of vernal pools typically requires USFWS-mandated preservation of vernal pools for compensation on a 3:1 ratio as do vernal pools indirectly impacted by the action (as recommended in the SAMP BO, dated October 2012). It is assumed vernal pool compensation acreage would have to be purchased off-base from vernal pool compensation banks, as a Project expense. Additional compensation for fill of Waters of the U.S. will be completed in agreement with the USACE.

Table 5. Threatened and Endangered Species Habitat Compensation

| Impact Acreage | Compensation Ratio | Compensation Acreage |
|----------------|--------------------|----------------------|
| 0.132 | 3:1 Preservation | 0.396 |

*Preservation acreage will be purchased at an approved mitigation bank.

6.0 SUMMARY AND ESA DETERMINATION FOR THE PROPOSED ACTION

The following section summarizes project effects and relates such impacts to the specific anticipated project effects on ESA-listed branchiopod species occurring on Beale AFB. The information and analysis presented in this abbreviated BA was the basis of the finding that the proposed project warrants an effect determination of **May Affect, Likely to Adversely Affect** for the listed vernal pool branchiopod species; vernal pool fairy shrimp and vernal pool tadpole shrimp.

The Proposed Action may affect and is likely to adversely affect 0.132 acres of branchiopod habitat indirectly due to habitat fragmentation and disruption in the vernal pool hydrology. Three swales (Sw 1324, 1331, and 1334) and eight vernal pools (VP 1113, 1123, 5008, 5012, 5013, 5014, 5015, 10942) will be affected. Some of these vernal pools are known to support sensitive fairy shrimp species. Through the implementation of BMPs, the Proposed Action may affect, but is not likely to adversely affect the remaining wetland features within the 250-ft project boundary.

7.0 REFERENCES

EM Assist. 2006. Dry-season shrimp sampling for Beale Air Force Base. Final letter report.

United States Department of Agriculture, (USDA). 1985. Soil Conservation Service. 1985. Soil Survey of Beale Air Force Base. Yuba County, CA

U.S. Fish and Wildlife Service (USFWS). 2012. Special Area Management Plan (SAMP) Programmatic Biological Opinion (BO). United States Fish and Wildlife Service. October 2012. Reference number 81420-2009-F-1118-1.



United States Department of the Interior



In Reply Refer to:
08ESMF00-
2014-I-0371

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

MAY 27 2014

Gregory S. Capra
Deputy Base Civil Engineer
9 CES/CD
6601 B Street
Beale AFB, California 95903-1708

Subject: Formal Consultation on the Construct New Distributed Common Ground System
for Beale Air Force Base, Yuba County, California

Dear Mr. Capra:

This letter is in response to your April 2, 2014, letter request to initiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the Construct New Distributed Common Ground System for Beale Air Force Base (AFB) (proposed project), in Yuba County, California. Your request, which included a biological assessment, was received by the Service on April 7, 2013. Based on the findings in the biological assessment, you determined that the proposed project may affect, and is 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 packardii*) (tadpole shrimp) (collectively, the vernal pool crustaceans). You arrived at this determination by analyzing the effects of the proposed project using the Service's October 2, 2012, *Programmatic Biological Opinion for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California* (Service 2012) (SAMP programmatic). The Federal action which we are consulting on is the construction of the proposed project. This response is provided pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

Our evaluation of your request is based on: (1) your April 2, 2014, letter initiating consultation; (2) the document entitled, *Construct New Distributed Common Ground System (DCGS) Operations Facility, at Beale Air Force Base, California, Abbreviated Biological Assessment* (BA), dated April 2014, and prepared by Beale AFB, which was enclosed with your letter; (3) the October 2, 2012, SAMP programmatic (File# 81420-2009-F-1118-1); and (4) other information available to the Service.

The Service's SAMP programmatic is intended for application to subsequent section 7 consultations for routine activities on Beale AFB. A combination of the SAMP sensitivity categories, federally-

listed species habitat evaluations, and adherence to the avoidance, minimization and general conditions proposed in the SAMP programmatic is to be used to determine possible effect levels to federally-listed species. Based on effect levels and the SAMP sensitivity categories, the SAMP programmatic is tiered so that there are specific thresholds for each of three levels of effect (Table 1).

BIOLOGICAL OPINION

Project Description

Beale AFB proposes to construct a new Distributed Common Ground System within the main base area between 9th Street, 11th Street, C Street and B Street. This would include building of a 85,000 square foot (sq. ft.) operations facility and 70,600 sq. ft. "TMET/SATCOM" pad, removal and replacement of sidewalks and parking areas, installation of backup generators and aboveground storage tanks, and construction of a mechanical yard, a drainage system, and a bioretention area. The project site environment is characterized as disturbed annual grassland in a highly developed area. It is entirely within the low integrity/developed area category identified in Figure 2a of the SAMP programmatic. The northern part of the project site is currently other developed facilities, and the southern portion is previously developed and now currently vacant land. The topography of the area is generally flat with a slight slope from northeast to southwest.

According to the BA, there is an array of wetland features in the form of pools, swales, and ditches, some within the project area, and others within 250 feet of the project area. These were determined by 2014 ground verification of wetland features initially mapped in 2009 using the Light Detecting and Ranging (LiDAR) method. The nearest sightings of vernal pool fairy shrimp and vernal pool tadpole shrimp were at distances of 94 feet and 1,930 feet, respectively, to the west of the project site.

As a result of the ground verification, a number of features within the disturbance area previously identified by LiDAR as wetlands could be impacted, but were determined not to be wetland features and therefore would not affect listed species (7 vernal pools, 2 swales, and 13 ditches). Additional wetland features that would not be impacted by the proposed project, consist of 20 vernal pools and 7 ditches. With one exception, all are outside the disturbance area but within the 250-foot project buffer. Rationales for no effect on listed species, specific to each of the 27 features, include separating physical structures such as roadways, strict adherence to erosion and sediment control Best Management Practices (BMPs), hydrologic separation (i.e., upslope of the proposed project), and/or lack of vernal pool vegetation. For the two cases in which vegetation type is stated as a rationale for no effect on listed species (ID numbers 743 and 1042, both ditches), the BA also states that these will not be filled or otherwise impacted.

Twelve ground-verified wetland features were determined to be impacted by the proposed project, and would affect listed species. These include 0.002 acre of direct impact as a result of the filling of one ditch, but this ditch is not considered to support listed species. An indirect impact of 0.132 acre on 11 other vernal pools or swales, all known to provide habitat for listed vernal pool crustaceans, would occur as the result of the re-routing of drainage from the proposed project area which is currently the source of water for this habitat.

Table 1: Effects Thresholds for Vernal Pool Crustaceans

| Criteria | Level 1 | Level 2 | Level 3 |
|------------------------|---|--|--|
| | No Effect | May Affect, Not Likely to Adversely Affect | May Affect, May Adversely Affect |
| Proximity to Resources | <p>Work on paved/gravel surfaces</p> <p>Work within paved/gravel road shoulders</p> | <p>Work outside wetlands but within 250 feet of wetlands that meet the following criteria:</p> <ul style="list-style-type: none"> • wetland is higher in elevation than the work site or, • wetland area is upstream of the project or, • a physical barrier to hydrological connectivity is present or , • shallow excavation (not penetrating the hardpan), or • other reasons why wetlands are not impacted | <p>Projects that will affect wetlands areas (directly or indirectly)</p> |
| Submittal to Service | No submittal | <p>A project description with map showing all wetlands areas within 250 feet, describing how wetlands will be avoided and how the effects will be minimized to an insignificant level. The submittal shall include the following information of the project site and surrounding area:</p> <ul style="list-style-type: none"> • Conceptual design • Topography description • Hydrological description • Soil/hardpan data • Species data (proximity of past occurrences in relation to project area) • Physical barriers between project and wetlands • Effects of the project • Justification for the NLAA recommendation | <p>A project description with map showing all wetlands areas within 250 feet. More specific project design and biological data will be provided for portions of the project that may affect wetlands or riparian areas.</p> <ul style="list-style-type: none"> • Detailed design • Topography description • Hydrological description • Soil/hardpan data • Species data (including site specific survey data, if applicable) • Explanation of direct or indirect impacts • Physical barriers between project and wetlands • Effects of the project • Proposed compensation • Justification for the |

| Criteria | Level 1 | Level 2 | Level 3 |
|---|--|---|--|
| | No Effect | May Affect, Not Likely to Adversely Affect | May Affect, May Adversely Affect |
| | | | May Adversely Affect recommendation |
| Location | SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas; | SAMP Low Integrity/ Developed Areas and SAMP Low Integrity/ Undeveloped Areas; and SAMP High Integrity/ Conservation Areas | SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas; and SAMP High Integrity/ Conservation Areas |
| Avoidance & Minimization Measures | All equipment and excess soil must stay on paved/gravel surfaces | General Avoidance Measures; Species-Specific Avoidance Measures; No compensatory mitigation required | General Avoidance Measures; Species-Specific Avoidance Measures; Compensatory mitigation may be required |

Avoidance and Minimization Measures

Avoidance and minimization measures in the SAMP programmatic are applied based on level of effects thresholds (Table 1). The proposed project description includes all of the *General Avoidance and Minimization Measures*, and additional *Species Specific Avoidance and Minimization Measures* for vernal pool crustaceans as described in the SAMP programmatic (pp. 20-23 and pp. 25-26; SAMP programmatic). Additionally, the indirect and direct impacts totaling 0.132 acre will be compensated at a ratio of 3:1 as required for Level 3 effects (pp. 28-29; SAMP programmatic), through the purchase of 0.396 acre of vernal pool habitat preservation credits at a Service-approved conservation bank with a Service area that covers the location of the proposed project.

Action Area

The action area is defined in 50 CFR §402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the Service considers the action area to be the construction footprint of the proposed project, including pads, parking lots, the bioretention basin, drainage system, mechanical yard, and generators. The action area also includes all areas outside of the construction footprint that will be temporarily impacted by dust and noise during project activities, or areas where hydrology of vernal pools would be affected.

Status of the Species and Environmental Baseline

See pp. 33-37 of the SAMP programmatic.

Evaluation under the Programmatic Consultation

The Service has determined that it is appropriate to evaluate the proposed project under the SAMP programmatic. New construction of facilities is a covered action under the SAMP programmatic. Beale AFB has determined the effects and proposed the avoidance and minimization measures identified within the SAMP programmatic appropriately based on the effects thresholds (Table 1).

Effects of the Action

The construction of the proposed project will result in the loss of 0.002 acre of wetland within ditch DI 169 which will be filled. However, because this particular ditch is not considered vernal pool crustacean habitat, this loss is not considered a direct effect. This ditch gathers flow from a larger area between 9th and 10th streets, and is hydrologically connected to eleven other wetland features (3 swales; 8 vernal pools) immediately to the west and downslope of the proposed project. These features, totaling 0.132 acre, are considered suitable habitat for listed vernal pool crustaceans (the nearest sighting of 94 feet to the proposed project is from one of these features, and all are hydrologically connected). The project will detain and reroute drainage away from this habitat. Therefore, this construction will have an indirect impact on vernal pool crustaceans and habitat. As discussed above (Project Description), any listed vernal pool species potentially present in 27 other wetland features within 250 feet of the project will not be affected because of physical separation, hydrologic separation, lack of vernal pool vegetation, and/or avoidance of impact through the use of BMPs and other measures in accordance with the SAMP programmatic.

Cumulative Effect

Cumulative effects include the effects of future state, tribal, county, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any reasonably certain future action that could result in effects in the action area.

Conclusion

After reviewing the current status of the vernal pool crustaceans, the environmental baseline in the SAMP programmatic, the effects of the proposed action, the cumulative effects, and the proposed conservation measures, it is the Service's biological opinion that the Construct New Distributed Common Ground System at Beale Air Force Base project, as proposed, is not likely to jeopardize the continued existence of the vernal pool crustaceans. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of the lack of cumulative effects, will not rise to the level of precluding recovery of the species or reducing the likelihood of survival of the species. The effects to the vernal pool crustaceans are small and discrete, relative to the range of the species, and although the loss of habitat will contribute to the overall reduction of habitat within the range, the conservation measures will contribute to the long-term preservation and management of vernal pool crustacean habitat. The project will contribute to the conservation of the vernal pool crustaceans by preserving habitat at a conservation bank that will manage a large contiguous section of habitat for the benefit of the species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of the Incidental Take Statement in the SAMP programmatic.

The measures described in the incidental take statement of the SAMP programmatic are non-discretionary, and must be undertaken by Beale AFB so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. Beale AFB has a continuing duty to regulate the activity covered by this incidental take statement. If Beale AFB: (1) fails to assume and implement the terms and conditions, or (2) fails to require any contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Beale AFB must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement in the SAMP programmatic [50 CFR §402.14(i)(3)].

Amount or Extent of Take

Upon implementation of the reasonable and prudent measures of the SAMP programmatic, the following level of incidental take of vernal pool crustaceans will be exempted from the prohibitions of take described under section 9 of the Act.

The incidental take of vernal pool crustaceans for the proposed project will result from the indirect degradation of 0.132 acre of suitable habitat that is hydrologically connected to and downslope of the site where construction will occur. Specifically, the project includes rerouting and detention of drainage which would impact the water source for this suitable habitat. This will likely affect the inundation duration and functional habitat area, factors known to be important for the support of listed vernal pool crustaceans, and production of individuals and cysts. This type of effect is difficult to quantify, because it may vary between years with precipitation, and because it is not possible to accurately assess the reduction in number of vernal pool crustaceans and cysts produced in the affected habitat. In instances such as this, in which the total number of individuals and/or cysts anticipated to be taken cannot be determined, the Service may use the acreage of habitat impacted as a surrogate; since the take of cysts and individuals anticipated will result from the degradation of the vernal pool crustacean habitat, the quantification of habitat acreage serves as a direct surrogate for

the vernal pool crustaceans that will be lost. Therefore, the Service anticipates take incidental to the proposed project as the 0.132 acre of suitable vernal pool crustacean habitat that will be indirectly affected.

Effect of the Take

The proposed project as described fits within the parameters of the level of take anticipated in the SAMP programmatic and the Service has determined that the level of anticipated take is not likely to result in jeopardy to the vernal pool crustaceans.

REINITIATION—CLOSING STATEMENT

This concludes the Service's review of the proposed Construct New Distributed Common Ground System at Beale Air Force Base project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been maintained (or is authorized by law), and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this biological opinion, please contact Steven Schoenberg, Senior Fish and Wildlife Biologist, at (916) 414-6564.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel Welsh", is positioned above the printed name and title.

Daniel Welsh
Acting Field Supervisor

TRIBAL COORDINATION

Beale AFB Cultural Resources Management (CRM) staff are required to complete Section 106 consultation with the State Historic Preservation Office (SHPO) for all construction occurring at Beale AFB that effects properties more than 50 years old or impacts formerly undisturbed areas. During this consultation process CRM staff review the onsite record of cultural resources present on the Base, consult with the Native American Heritage Commission (NAHC), and review records stored at the North Central Information Center (NCIC). If previously undisturbed areas are to be disturbed by an undertaking and there are no preexisting surveys or records, professional archaeologists perform new surveys that are then added to the record. Once all the data is gathered it is incorporated into a precise project description including a detailed map containing aerial photos and Global Information System (GIS) data which accurately depict the location of sensitive cultural resources within the Area of Potential Effect (APE).

This information is included in the Section 106 consultation signed by the Base Civil Engineer (BCE) or Deputy and provided to the SHPO. Simultaneously, the BCE signed consultation package is sent via certified mail to the 12 federally recognized tribes with interests on or around Beale AFB. Tribal contact lists are actively maintained for accuracy. Each of the 12 packages is accompanied by a BCE signed cover letter soliciting feedback from the individual tribes. These packages serve as consultation with the local Native American tribes.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR BERRY CREEK RANCHERIA OF MAIDU INDIANS
ATTN: JIM EDWARDS
5 Tyme Way
Oroville, CA 95966

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).

2. The EAs will address four proposed projects, all of which involve existing buildings, bridges, or new construction within the main area of the base. None of these projects will impact areas of undisturbed soil. The four proposed projects are:

- a. Replacement of two small roadway bridges on Gavin Mandery Drive.
- b. Demolition of the old base jail, a storage building, and a warehouse (Buildings 355, 1028, and 2594).
- c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
- d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.

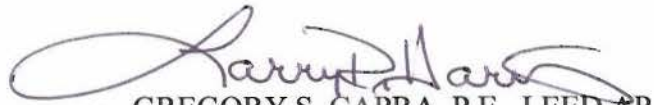
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.

4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD To BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Berry Creek Rancheria is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


For GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultations



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR BUTTE TRIBAL COUNCIL
ATTN: REN REYNOLDS
1671 Mt. Ida Rd
Oroville, CA 95966

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

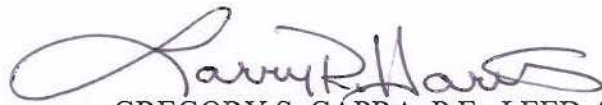
SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).
2. The EAs will address four proposed projects, all of which involve existing buildings, bridges, or new construction within the main area of the base. None of these projects will impact areas of undisturbed soil. The four proposed projects are:
 - a. Replacement of two small roadway bridges on Gavin Mandery Drive.
 - b. Demolition of the old base jail, a storage building, and a warehouse (Buildings 355, 1028, and 2594).
 - c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
 - d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.
4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Butte Tribal Council is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


for GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR ENTERPRISE RANCHERIA OF MAIDU INDIANS
ATTN: GLENDA NELSON
2133 Monte Vista Ave
Oroville, CA 95966

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).

2. The EAs will address four proposed projects, all of which involve existing buildings, bridges, or new construction within the main area of the base. None of these projects will impact areas of undisturbed soil. The four proposed projects are:

- a. Replacement of two small roadway bridges on Gavin Mandery Drive.
- b. Demolition of the old base jail, a storage building, and a warehouse (Buildings 355, 1028, and 2594).
- c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
- d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.

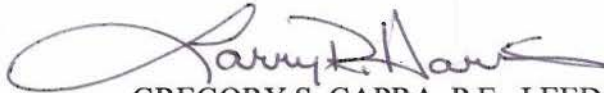
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.

4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Enterprise Rancheria is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


for GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR KONKOW VALLEY BAND OF MAIDU
ATTN: RONALD SEEK
1706 Sweem St
Oroville, CA 95965

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).

2. The EAs will address four proposed projects, all of which involve existing buildings, bridges, or new construction within the main area of the base. None of these projects will impact areas of undisturbed soil. The four proposed projects are:

- a. Replacement of two small roadway bridges on Gavin Mandery Drive.
- b. Demolition of the old base jail, a storage building, and a warehouse (Buildings 355, 1028, and 2594).
- c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
- d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.

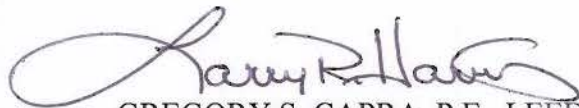
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.

4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Konkow Valley Band is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


for GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer
LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR MAIDU BAND OF THE STRAWBERRY VALLEY RANCHERIA
ATTN: CATHY BISHOP
PO Box 667
Marysville, CA 95901

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

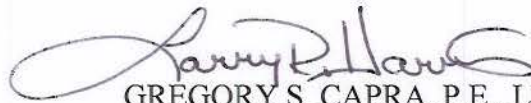
SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).
2. The EAs will address four proposed projects, all of which involve existing buildings, bridges, or new construction within the main area of the base. None of these projects will impact areas of undisturbed soil. The four proposed projects are:
 - a. Replacement of two small roadway bridges on Gavin Mandery Drive.
 - b. Demolition of the old base jail, a storage building, and a warehouse (Buildings 355, 1028, and 2594).
 - c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
 - d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.
4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Strawberry Valley Rancheria is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.



GREGORY S. CAPRA, P.E., LEED AP

For Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR MECHOOPDA INDIAN TRIBE OF CHICO
ATTN: DENNIS RAMIREZ
125 Mission Rancg Blvd
Chico, CA 95926

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

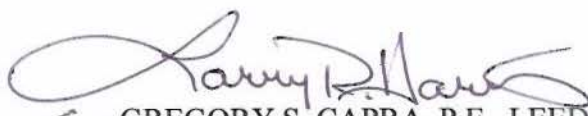
SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).
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 - a. Replacement of two small roadway bridges on Gavin Mandery Drive.
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 - c. Demolition of seven buildings that comprise the "Temporary Lodging Facilities" or TLF (Buildings 5109, 5110, 5111, 5112, 5113, 5114, and 5116).
 - d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.
4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Mechoopda Indian Tribe is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


For GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR MOORETOWN RANCHERIA
ATTN: GARY ARCHULETA
#1 Alverda Dr
Oroville, CA 95966

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

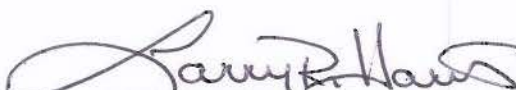
SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).
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 - d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites as a result of these projects. Copies of SHPO correspondence pertaining to these projects are attached.
4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Mooretown Rancheria is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.



for GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR SHINGLE SPRINGS RANCHERIA
ATTN: JEFF MURRAY
PO Box 1340
Oroville, CA 95966

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

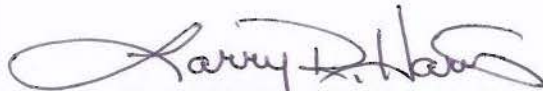
SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

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 - d. Construction of a new control facility for reconnaissance aircraft called the "Digital Common Ground System" or DCGS Facility.
3. Per Section 106 of the NHPA, consultations with the State Historic Preservation Officer (SHPO) have been initiated for all of these projects. And, for all the projects, Air Force Cultural Resource Management (CRM) personnel have determined that there will be no impacts to any historic properties or any known archaeological sites. Copies of SHPO correspondence pertaining to these projects are attached.
4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. Also, the Shingle Springs Rancheria is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.



for GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR TSI-AKIM TRIBE
ATTN: DONALD RYBERG
1239 E. Main St.
Grass Valley, CA 95945

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).

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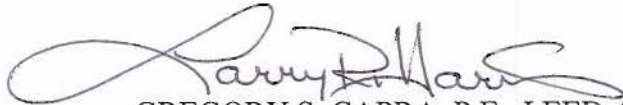
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4. Although no known Native American resources are located near any of these project sites, all construction and demolition workers will be trained to identify and avoid any artifacts that may be unearthed. If an inadvertent discovery is made, work will be suspended in the area, protective measures will be put in place, and Beale CRM personnel will contact the appropriate Native American tribal representatives and the SHPO.

PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The Tsi-Akim Tribe is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.


For GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MAY 13 2014

MEMORANDUM FOR UNITED AUBURN INDIAN COMMUNITY
ATTN: GENE WHITEHOUSE, CHAIRPERSON
10720 Indian Hill Rd
Auburn, CA 95603

FROM: 9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Proposed Construction and Demolition Projects at Beale AFB

1. The U.S. Air Force and Beale Air Force Base (AFB) have initiated Environmental Assessments (EAs) to address proposed new construction and demolition projects at the installation. These projects will replace deteriorating infrastructure and remove unused buildings on the installation. At this time, the Air Force desires to initiate consultation on these projects following Section 106 of the National Historic Preservation Act (NHPA).

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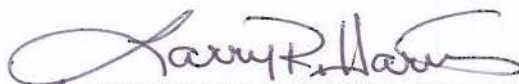
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PROUD TO BE.....MSG!

5. Please review the information we have provided and let us know if you have any questions about the projects, our consultation with the SHPO or with your tribe, or any concerns about the projects themselves. The United Auburn Indian Community is invited to visit the project sites prior to project commencement, and to monitor construction activity as work progresses.

6. Please direct any questions or concerns to Mr. Chuck Carroll, at (530) 634-2738, or charles.carroll.3@us.af.mil or fax (530) 634-2845. You may also contact Mr. James Lang at (530) 634-2642, or james.lang.6@us.af.mil.



For

GREGORY S. CAPRA, P.E., LEED AP
Deputy Base Civil Engineer

LARRY R. HARRIS, Lt Col., USAF
Commander, 9 CES

Attachment:

CD - Four SHPO Consultation Packets



SHINGLE SPRINGS RANCHERIA
P.O. BOX 1340; SHINGLE SPRINGS, CA 95682
(530) 676-8010; FAX (530) 676-3582

June 23, 2014

9 CES/CD
6451 B Street
Beale AFB CA 95903-1708

RE: Proposed Construction and Demolition Projects at Beale AFB

Dear Larry R. Harris

Thank you for your letter dated May 13, 2014 in regard to the Construction and Demolition Projects at Beale AFB. 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 that we currently have in place to protect such important and sacred artifacts (especially near rivers and streams).

Please contact the following individuals if such finds are made:

Andrew Godsey, Assistant Cultural Resource Director / NAI
Office: (530) 698-1403 agodsey@ssband.org

And copy all communications to:
Kara Perry, Administrative Assistant (530) 488-4049 kperry@ssband.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,


Daniel Fonseca
Cultural Resource Director
Tribal Historic Preservation Officer (THPO)
Most Likely Descendent (MLD)

AFFIDAVIT OF PUBLICATION
(2015.5 C.C.P.)

APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901 * (530) 749-4700

STATE OF CALIFORNIA * Counties of Yuba and Sutter

I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No.CV PT99-0819. The Notice, of which the annexed is a copy, appeared in said newspaper on the following dates:

April 19, 2014

I declare under penalty of perjury that the foregoing is true and correct. Executed at Marysville, California.

April 21, 2014

Mey Saechao

Date

Signature

AECOM

Public Notice

COPY:

PUBLIC NOTICE

Notice of Availability

DRAFT

ENVIRONMENTAL ASSESSMENT (EA)

FOR NEW DISTRIBUTED COMMON GROUND SYSTEM OPERATIONS FACILITY
AT BEALE AIR FORCE BASE, CALIFORNIA

The U.S. Air Force at Beale Air Force Base (AFB), California, proposes to construct a new Distributed Common Ground System (DCGS) Operations Facility to accommodate mission growth at Beale AFB. The objective of the EA is to analyze and disclose any potential environmental impacts. In accordance with 32 CFR 989, the Air Force is required to prepare an EA and provide documentation for public review. A draft EA has been prepared and is available for review.

The review period for this EA is thirty (30) days. The document will be available for review at the Beale AFB Environmental Office for 30 days from the date of this publication. Copies can also be obtained by calling (530) 634-4451 or by mailing a request to 9 CES/CEIE, 6601 B Street, Beale AFB, CA 95903, Attn: Ms. Jamie Visinoni.

April 19, 2014 Ad #00168145

APPENDIX B
AIR EMISSIONS CALCULATIONS

B.1 Introduction

This appendix provides the following analyses of potential air quality impacts:

- Criteria and hazardous pollutants (HAPs) emissions analysis
- Federal Clean Air Act (CAA) general conformity rule applicability analysis.
- Feather River Air Quality Management District (FRAQMD) Indirect Source Review (ISR) Guidelines compliance determination.
- Greenhouse gas analysis.

B.2 Clean Air Conformity

The 1990 amendments to the CAA require federal agencies to ensure that their actions conform to the appropriate State Implementation Plan (SIP) in a nonattainment area. The SIP provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS); it includes emission limitations and control measures to attain and maintain the NAAQS. Conformity to a SIP, as defined in the CAA, means conformity to a SIP's purpose of reducing the severity and number of violations of the NAAQS to achieve attainment of the standards. The federal agency responsible for a proposed action is required to determine if its proposed action conforms to the applicable SIP.

The U.S. Environmental Protection Agency (EPA) has developed two sets of conformity regulations; federal actions are differentiated into transportation projects and non-transportation-related projects:

- Transportation projects, which are governed by the "transportation conformity" regulations (40 CFR Parts 51 and 93), effective on December 27, 1993 and revised on August 15, 1997.
- Non-transportation projects which are governed by the "general conformity" regulations (40 CFR Parts 6, 51 and 93) described in the final rule for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans* published in the *Federal Register* on November 30, 1993. The general conformity rule became effective January 31, 1994 and was revised on March 24, 2010.

Since the Proposed Action is not a transportation project, the general conformity regulation applies. The general conformity applicability analysis is prepared for the proposed project that includes an increase in construction at Beale Air Force Base (AFB) in Yuba County, California.

B.3 General Conformity

B.3.1 Attainment and Nonattainment Areas

The general conformity rule applies to federal actions occurring in air basins designated as nonattainment for the NAAQS or in attainment areas subject to maintenance plans (maintenance areas). Federal actions occurring in air basins that are in attainment with the NAAQS are not subject to the conformity rule.

A criterion pollutant is a pollutant for which an air quality standard has been established under the CAA. The designation of nonattainment is based on the exceedances or violations of the air quality standard. A

maintenance plan establishes measures to control emissions to ensure the air quality standard is maintained in areas that have been re-designated as attainment from a previous nonattainment status.

Under the requirements of the 1970 CAA, as amended in 1977 and 1990, the U.S. EPA established NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), inhalable particulate matter (PM₁₀ and PM_{2.5}), and lead (Pb).

Areas that meet the NAAQS for a criterion pollutant are designated as being in “attainment;” an area where a pollutant level exceeds the corresponding NAAQS is designated as being in “nonattainment.” O₃ nonattainment areas are subcategorized based on the severity of their pollution problem (marginal, moderate, serious, severe, or extreme). PM₁₀ and CO nonattainment areas are classified as moderate or serious. When insufficient data exist to determine an area's attainment status, it is designated unclassifiable (or in attainment).

The Proposed Action would take place at Beale AFB in Yuba County, California, an area that is currently designated as a nonattainment area for PM_{2.5} and an attainment/unclassified area for the other criteria pollutants.

B.3.2 *De Minimis* Emissions Levels

To focus general conformity requirements on those federal actions with the potential to have significant air quality impacts, threshold (*de minimis*) rates of emissions were established in the final rule. A formal conformity determination is required when the annual net total of direct and indirect emissions from a federal action occurring in a nonattainment or maintenance area for a criterion pollutant would equal or exceed the annual *de minimis* level for that pollutant. Table B-1 lists the *de minimis* levels for each pollutant.

Table B-1
***De Minimis* Emission Levels for Criteria Air Pollutants**

| Pollutant | Nonattainment Designation | Tons/Year |
|---|---|-----------|
| Ozone* | Serious | 50 |
| | Severe | 25 |
| | Extreme | 10 |
| | Other nonattainment or maintenance areas outside ozone transport region | 100 |
| | Marginal and moderate nonattainment areas inside ozone transport region | 50/100** |
| Carbon Monoxide | All | 100 |
| Sulfur Dioxide | All | 100 |
| Lead | All | 25 |
| Nitrogen Dioxide | All | 100 |
| Particulate Matter ≤ 10 microns | Moderate | 100 |
| | Serious | 70 |
| Particulate Matter ≤ 2.5 microns*** | All | 100 |
| Notes: * Applies to ozone precursors – volatile organic compounds (VOC) and nitrogen oxides (NO _x); ** VOC/NO _x ; *** Applies to PM _{2.5} and its precursors. | | |

For a PM_{2.5} nonattainment area, the *de minimis* level of 100 tons per year (tpy) applies.

B.3.3 Analysis

This CAA General Conformity Rule (GCR) analysis was conducted according to the guidance provided by 40 CFR Parts 6, 51, and 93. *Determining Conformity of Federal Actions to State or Federal Implementation Plans*, (U.S. EPA, November 30, 1993 and March 24, 2010).

The GCR analysis was performed to determine whether a formal conformity analysis would be required. Pursuant to the GCR, all reasonably foreseeable emissions (both direct and indirect) associated with the implementation of the project were quantified and compared to the applicable annual *de minimis* levels to determine potential air quality impacts.

The conformity analysis for a federal action examines the impacts of the direct and indirect net emissions from mobile and stationary sources. Direct emissions are emissions of a criterion pollutant or its precursors that are caused or initiated by a federal action and occur at the same time and place as the action. Indirect emissions, occurring later in time and/or further removed in distance from the action itself, must be included in the determination if both of the following apply:

- The federal agency can practicably control the emissions and has continuing program responsibility to maintain control.
- The emissions caused by the federal action are reasonably foreseeable.

Direct and indirect NO_x and VOC emissions would potentially result from the following construction and operational activities:

- Use of diesel-powered nonroad equipment.
- Movement of trucks and worker's commuting vehicles during the construction.
- Indirect operational emission sources from building occupants, off-base power suppliers, and construction materials production.
- Operation of three (3) 1,500-kilowatt emergency generators and two (2) 12,000-gallon diesel fuel storage tanks.

B.4 Feather River Air Quality Management District (FRAQMD) Indirect Source Review (ISR) Guidelines

For indirect sources associated with land use development projects, the FRAQMD established the guideline for both operational and construction emissions. The land use project elements to be regulated under this guideline would include:

- Use of diesel-powered nonroad equipment during construction.
- Movement of trucks and worker's commuting vehicles during the construction.
- Indirect operational emission sources from building occupants, off-base power suppliers, and building materials production.

Table B-2 summarizes the applicable significance threshold under both operational and construction phases of the land use development project components.

Table B-2
FRAQMD Threshold of Significance

| Project Phase | NOx | VOC | PM10 |
|--------------------------------|--|--|------------|
| Operational | 25 lbs/day | 25 lbs/day | 80 lbs/day |
| Construction | 25 lbs/day & 4.5 tons/year over the project duration | 25 lbs/day & 4.5 tons/year over the project duration | 80 lbs/day |
| Source: FRAQMD, June 10, 2010. | | | |

B.5 Emissions Estimate

B.5.1 Indirect Source Emissions

Potential total emissions generated by land use project-related construction and operational activities were predicted using the California Emissions Estimator Model (CalEEMod, Version 2013.2) developed by California Air Pollution Control Officers Association (CAPCOA) for land use development projects. CalEEMod includes modules to calculate:

- Short term construction emissions associated with demolition, site preparation, grading, building, coating, and paving from the following sources
 - Off-road construction equipment
 - On-road mobile equipment associated with workers, vendors, and hauling
 - Fugitive dust associated with grading, demolition, truck loading, and roads (Fugitive dust from wind blown sources such as storage piles are not quantified in CalEEMod which is consistent with approaches taken in other comprehensive models.)
 - Volatile emissions of reactive organic gasses (ROG) from architectural coating (*including painting on parking lots*) and paving.
- Operational emissions associated with the fully built out land use development
 - On-road mobile vehicle traffic generated by the land uses
 - Fugitive dust associated with roads
 - Volatile emissions of ROG from architectural coating
 - Emissions from off-road equipment (e.g., forklifts, cranes) used during operation
 - Off-road emissions from landscaping equipment
 - Volatile emissions of ROG from consumer products and cleaning supplies
 - Wood stoves and hearth usage
 - Natural gas usage in the buildings
 - Electricity usage in the buildings (GHG only)
 - Electricity usage from lighting in parking lots and lighting, ventilation and elevators in parking structures

- Water usage by the land uses (GHG only)
- Solid waste disposal by the land uses (GHG only)
- One-time vegetation sequestration changes
 - Permanent vegetation land use changes
 - New tree plantings

The estimated building and parking lot demolition/construction and operational indirect source emissions are summarized in Table B-3 for the Proposed Action and Alternative 1. The modeling backups are attached at the end of this appendix. Because the construction is planned to be completed in between 18 and 24 months, the total construction emissions were averaged over two calendar years to determine average annual emissions. Average daily emissions were conservatively determined by averaging the total construction emissions over the 18-month duration (i.e., 547 days) as summarized in Table B-3.

B.5.2 Direct Source Operational Emissions

After the completion of construction activities, three 1,500 kilowatts emergency generators with two 12,000 gallon above ground diesel tanks would be installed for backup power purposes. Each of these stationary source activities could represent a new source of (or an increase in) air emissions even though these sources would only be operated under emergency conditions substituting existing power. The anticipated worst-case annual emissions from potential new emergency generators were conservatively predicted using the U.S. EPA AP-42 emission factor handbook and the maximum operational hours for emergency generators, i.e., 500 hours based on the EPA default value for emergency generators. The estimated emissions with potential to emit from the generators are presented in Table B-4. Fuel storage tanks are considered negligible stationary sources with potential VOC emissions particularly for supporting the operation of three emergency generators, they are not considered in the emissions calculation.

Table B-3
Total Indirect Source Net Increase in Construction and Operational Emissions (tons)

| Activity | VOC | NO_x | CO | PM_{2.5} | PM₁₀ | SO₂ | CO₂ |
|---|-------------|-----------------------|-------------|-------------------------|------------------------|-----------------------|-----------------------|
| <i>Proposed Action</i> | | | | | | | |
| Total Building Construction | 1.595 | 2.794 | 2.543 | 0.188 | 0.264 | 0.004 | 314.27 |
| Total Parking Lot Construction | 0.769 | 2.876 | 3.013 | 0.184 | 0.320 | 0.004 | 373.65 |
| Average Annual Construction Emissions (2014 and 2015) | 1.2 | 2.8 | 2.8 | 0.2 | 0.3 | 0.0 | 344.0 |
| Average Daily Construction Emissions (18 months – 547 days within 2014 and 2015) (lbs/day) | 8.6 | 20.7 | 20.3 | 1.4 | 2.1 | 0.0 | 2,512.9 |
| Total Building Operation Emissions | 1.996 | 1.424 | 6.471 | 0.212 | 0.742 | 0.011 | 1,198.00 |
| Total Parking Lot Operation Emissions | 0.47 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 30.84 |
| Average Annual Indirect Source Operation Emissions | 2.5 | 1.4 | 6.5 | 0.2 | 0.7 | 0.0 | 1,228.8 |
| Average Daily Indirect Source Operation Emissions (365 days per year) (lbs/day) | 13.5 | 7.8 | 35.5 | 1.2 | 4.1 | 0.1 | 6,733.2 |
| <i>Alternative 1</i> | | | | | | | |
| Total Building Construction | 2.023 | 3.785 | 3.381 | 0.253 | 0.360 | 0.005 | 421.16 |
| Total Parking Lot Construction | 0.769 | 2.876 | 3.013 | 0.184 | 0.320 | 0.004 | 373.65 |
| Average Annual Construction Emissions (2014 and 2015) | 1.4 | 3.3 | 3.2 | 0.2 | 0.3 | 0.0 | 397.4 |
| Average Daily Construction Emissions (18 months – 547 days within 2014 and 2015) (lbs/day) | 10.2 | 24.3 | 23.4 | 1.6 | 2.5 | 0.0 | 2,903.3 |
| Total Building Operation Emissions | 2.465 | 1.759 | 7.993 | 0.262 | 0.916 | 0.013 | 1,479.89 |
| Total Parking Lot Operation Emissions | 0.47 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 30.84 |
| Average Annual Indirect Source Operation Emissions | 2.9 | 1.8 | 8.0 | 0.3 | 0.9 | 0.0 | 1,510.7 |
| Average Daily Indirect Source Operation Emissions (365 days per year) (lbs/day) | 16.1 | 9.6 | 43.8 | 1.4 | 5.0 | 0.1 | 8,278.0 |

Table B-4
Potential Maximum Net Increase in Generator Operational Emissions

| Annual Potential Emissions (tons) | | | | | | | | |
|-----------------------------------|------|-----------------|------|-------------------|------------------|-----------------|------|-----------------|
| Source | VOC | NO _x | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAP | CO ₂ |
| Generators | 1.06 | 36.21 | 8.30 | 1.06 | 1.06 | 0.02 | 0.01 | 1750.01 |

It should be noted, for the engines greater than 600 HP, such as the proposed three new emergency generators, according to Beale AFB Permit 9017, the potential emissions are capped by the limit of 74,000 gallons of fuel usage. Although the potential to emit from the three new emergency generators would be below the emissions limit set forth in Permit 9017, the actual operational hours would be restricted at these new generators under the base-wide permit condition depending on the usage of existing generators. Based on the 2010 base-wide emissions inventory, approximately 25 percent of annual emissions limits were consumed from the operation of existing generators.

Under the proposed action, the base-wide stationary source air permit would be modified to include these new emergency generators and the future annual emissions statement would include the actual operation.

B.6 Compliance Analysis

B.6.1 General Conformity Rule Applicability

Based on this analysis of PM_{2.5} emissions performed in conjunction with the Final Rule of *Determining Conformity of Federal Actions to State or Federal Implementation Plans*, (U.S. EPA, November 30, 1993), the Proposed Action would not require a formal conformity determination as indicated in Table B-5. Therefore, the project would have minimal air quality impacts and would not require a formal conformity determination.

B.6.2 FRAQMD ISR Guidelines

The CalEEMod-predicted indirect source construction and operational emissions on both daily and annual basis would not exceed applicable significance thresholds as shown in Table B-6. Therefore the project-induced emissions sources would not be considered significant and no mitigation measures are warranted.

Table B-5
Total Combined Net and Net Percent Increase in Annual Emissions (tons)

| Category | VOC | NOx | CO | PM _{2.5} | PM ₁₀ | SO ₂ | HAPs | CO ₂ |
|---|--------------|---------------|---------------|-------------------|------------------|-----------------|-------------|---------------------------|
| Proposed Action | | | | | | | | |
| Construction Years | 1.2 | 2.8 | 2.8 | 0.2 | 0.3 | 0.0 | 0.3 | 344.0 |
| Operational Years | 3.5 | 37.6 | 14.8 | 1.3 | 1.8 | 0.0 | 0.0 | 2,978.8 |
| <i>Baseline/No Action Operational Emissions Inventory</i> | <i>36.84</i> | <i>103.33</i> | <i>300.75</i> | <i>23.33</i> | <i>54.07</i> | <i>4.26</i> | <i>1.51</i> | <i>82,518¹</i> |
| Potential Maximum Net Percent Increase in Operational Emissions over Baseline Annual Emissions Inventory (%) | 9.5 | 36.4 | 4.9 | 5.6 | 3.3 | 0.0 | 0.1 | 3.6 |
| Alternative 1 | | | | | | | | |
| Construction Years | 1.4 | 3.3 | 3.2 | 0.2 | 0.3 | 0.0 | 0.3 | 397.4 |
| Operational Years | 3.9 | 39.0 | 16.3 | 1.4 | 2.0 | 0.0 | 0.0 | 3,251.7 |
| <i>Baseline/No Action Operational Emissions Inventory</i> | <i>36.84</i> | <i>103.33</i> | <i>300.75</i> | <i>23.33</i> | <i>54.07</i> | <i>4.26</i> | <i>1.51</i> | <i>82,518¹</i> |
| Potential Maximum Net Percent Increase in Operational Emissions over Baseline Annual Emissions Inventory (%) | 10.5 | 37.7 | 5.4 | 6.0 | 3.7 | 0.0 | 0.1 | 3.9 |
| Threshold Limits | | | | | | | | |
| <i>De minimis Threshold</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>100</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> |
| <i>Does Annual Level Exceed De Minimis Threshold?</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>No</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> |
| Source: Baseline actual emissions inventory data is from 2010 Air Emissions Inventory Report, November 2012. Note: ¹ Total level inventoried. | | | | | | | | |

Table B-6
Total Indirect Source Net Increase in Construction and Operational Emissions

| Category | VOC | NO_x | CO | PM_{2.5} | PM₁₀ | SO₂ | CO₂ |
|--|------------|-----------------------|------------|-------------------------|------------------------|-----------------------|-----------------------|
| <i>Proposed Action</i> | | | | | | | |
| Average Annual Construction Emissions (tons) | 1.2 | 2.8 | 2.8 | 0.2 | 0.3 | 0.0 | 344.0 |
| Average Daily Construction Emissions (lbs) | 8.6 | 20.7 | 20.3 | 1.4 | 2.1 | 0.0 | 2,512.9 |
| Average Annual Operation Emissions (tons) | 2.5 | 1.4 | 6.5 | 0.2 | 0.7 | 0.0 | 1,228.8 |
| Average Daily Operation Emissions (lbs) | 13.5 | 7.8 | 35.5 | 1.2 | 4.1 | 0.1 | 6,733.2 |
| <i>Alternative 1</i> | | | | | | | |
| Average Annual Construction Emissions (tons) | 1.4 | 3.3 | 3.2 | 0.2 | 0.3 | 0.0 | 397.4 |
| Average Daily Construction Emissions (lbs) | 10.2 | 24.3 | 23.4 | 1.6 | 2.5 | 0.0 | 2,903.3 |
| Average Annual Operation Emissions (tons) | 2.9 | 1.8 | 8.0 | 0.3 | 0.9 | 0.0 | 1,510.7 |
| Average Daily Operation Emissions (lbs) | 16.1 | 9.6 | 43.8 | 1.4 | 5.0 | 0.1 | 8,278.0 |
| <i>Threshold Limits</i> | | | | | | | |
| <i>FRAQMD Construction Annual Emissions Threshold of Significance (tons)</i> | 4.5 | 4.5 | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> |
| <i>FRAQMD Average Daily Emissions Threshold of Significance (lbs)</i> | 25 | 25 | <i>n/a</i> | <i>n/a</i> | 80 | <i>n/a</i> | <i>n/a</i> |
| <i>Does Annual or Daily Level Exceed FRAQMD Significance Threshold?</i> | No | No | <i>n/a</i> | <i>n/a</i> | No | <i>n/a</i> | <i>n/a</i> |

B.7 Attainment Criteria Pollutants, Hazardous Pollutants, and Greenhouse Gas Emissions

The attainment pollutants (i.e., VOC, NO_x, CO, PM₁₀, and SO₂) and greenhouse gas emissions in terms of CO₂ levels were estimated in the same way used for predicting nonattainment criteria pollutant emissions, and they are summarized in the same tables as for nonattainment pollutants. Since the CalEEMod does not provide total HAPs emissions estimate, the HAP emissions inventory methodology established for nonroad equipment, as the dominant source of construction emissions, in the U.S. EPA-sponsored document, *Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory* (E.H. Pechan & Associates, Inc. 2005), was used to predict equipment HAPs. Specific HAP speciation factor for each available toxic in terms of VOC or PM₁₀ fraction are summarized in Table B-7. The combined HAPs fraction was further used in predicting HAPs annual emissions during the construction years from the Proposed Action and Alternative 1 based on the annual VOC and PM₁₀ emissions summarized in Table B-5.

California Greenhouse Gas Reporting Rule – California Code of Regulations, Title 17, Subchapter 10, Article 2, 95100-95133 *Regulation for Mandatory Reporting of Greenhouse Gas Emissions*, promulgated December 2007.

Beale AFB is subject to the California Greenhouse Gas Reporting Rule, California Code of Regulations, Title 17, Subchapter 10, Article 2, 95100-95133, if they:

- Emit 10,000 metric tons per year of CO₂ from all stationary combustion processes, or
- Emit 2,500 metric tons per year of CO₂ from electric generation or cogeneration facilities greater than 1 MW capacity.

Standby emergency generators are exempt from reporting under this rule with an exception of emergency fire pumps. Therefore the proposed project would not cause any change in current reporting status at Beale AFB.

It should be noted that that the current emissions triggers for California GHG rule applicability are for CO₂ gas, rather than CO₂ equivalents. Methane and other greenhouse gases do not currently count toward the reporting threshold.

Table B-7
Nonroad Equipment HAP Speciation Factor

| HAPs | National Diesel Exhaust HAP/VOC or HAP/PM ₁₀ Fraction |
|---------------------------------------|--|
| 1,3-Butadiene | 0.0018616 |
| 2,2,4-Trimethylpentane | 0.000719235 |
| Acetaldehyde | 0.05308 |
| Acrolein | 0.00303 |
| Benzene | 0.020344 |
| Ethylbenzene | 0.0031001 |
| Formaldehyde | 0.11815 |
| n-Hexane | 0.0015913 |
| PAH (fraction of PM ₁₀) | 0.0004 |
| Propionaldehyde | 0.011815 |
| Styrene | 0.00059448 |
| Toluene | 0.014967 |
| Xylenes | 0.010582 |
| Total VOC Fraction | 0.24 |
| Total PM₁₀ Fraction | 0.0004 |

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California Air Pollution Control Officers Association, 2013. California Emissions Estimator Model User's Guide Version 2013.2. July.

Council on Environmental Quality, 2010. Memorandum for Heads of Federal Departments and Agencies from: Nancy H. Sutley, Chair, Council on Environmental Quality Subject: *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas*. February 18.

E.H. Pechan & Associates, Inc., 2005. Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory. EPA Contract No.: 68-D-02-063, September 30.

Federal Aviation Administration. 2004. *Air Quality Procedures for Civilian Airports & Air Force Bases*, September.

U.S. Environmental Protection Agency, 1993. *40 CFR Parts 6, 51, and 93. Determining Conformity of Federal Actions to State or Federal Implementation Plans, Federal Register*, November 30.

U.S. Environmental Protection Agency, 2010. *40 CFR Parts 51 and 93. Revision to the General Conformity Rule*, March 24.

U.S. Environmental Protection Agency, 2008. Nonroad Model Emission Factor Worksheet, December 31.

Beale AFB DCGS
Yuba County, Annual

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|-------------------------|-------|----------|-------------|--------------------|------------|
| General Office Building | 85.00 | 1000sqft | 1.95 | 85,000.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|----------------------------|--------------------------------|----------------------------|-------|----------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 72 |
| Climate Zone | 3 | | | Operational Year | 2016 |
| Utility Company | Pacific Gas & Electric Company | | | | |
| CO2 Intensity (lb/MWhr) | 641.35 | CH4 Intensity (lb/MWhr) | 0.029 | N2O Intensity (lb/MWhr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - To build a building in 200 days, the two welders will not need to operate continuously over the entire period with 100 percent usage.

Off-road Equipment -

Only some sidewalks needs to be demolished and there is no need to use three backhoes on site during demo.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Add 12 miles on-site travel distance.

On-road Fugitive Dust -

Demolition -

Vehicle Trips -

Road Dust -

Construction Off-road Equipment Mitigation - using at least Tier 2 engine

Off-road Equipment -

Area Coating -

Landscape Equipment -

Grading - Not much demolition is

| Table Name | Column Name | Default Value | New Value |
|---------------------------|----------------------------|---------------|-----------|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 1.5951 | 2.7940 | 2.5427 | 3.5900e-003 | 0.0986 | 0.1652 | 0.2638 | 0.0305 | 0.1578 | 0.1883 | 0.0000 | 314.2725 | 314.2725 | 0.0488 | 0.0000 | 315.2969 |
| Total | 1.5951 | 2.7940 | 2.5427 | 3.5900e-003 | 0.0986 | 0.1652 | 0.2638 | 0.0305 | 0.1578 | 0.1883 | 0.0000 | 314.2725 | 314.2725 | 0.0488 | 0.0000 | 315.2969 |

Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 1.5951 | 2.7940 | 2.5427 | 3.5900e-003 | 0.0986 | 0.1652 | 0.2638 | 0.0305 | 0.1578 | 0.1883 | 0.0000 | 314.2722 | 314.2722 | 0.0488 | 0.0000 | 315.2966 |
| Total | 1.5951 | 2.7940 | 2.5427 | 3.5900e-003 | 0.0986 | 0.1652 | 0.2638 | 0.0305 | 0.1578 | 0.1883 | 0.0000 | 314.2722 | 314.2722 | 0.0488 | 0.0000 | 315.2966 |

[illegible]

2.2 Overall Operational**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |
| Energy | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 312.4749 | 312.4749 | 0.0125 | 3.4800e-003 | 313.8170 |
| Mobile | 1.5588 | 1.3669 | 6.4218 | 0.0102 | 0.7223 | 0.0150 | 0.7373 | 0.1936 | 0.0138 | 0.2074 | 0.0000 | 795.2610 | 795.2610 | 0.0425 | 0.0000 | 796.1541 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 16.0464 | 0.0000 | 16.0464 | 0.9483 | 0.0000 | 35.9611 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 4.7929 | 33.2086 | 38.0015 | 0.4938 | 0.0119 | 52.0704 |
| Total | 1.9956 | 1.4240 | 6.4706 | 0.0105 | 0.7223 | 0.0194 | 0.7416 | 0.1936 | 0.0181 | 0.2118 | 20.8393 | 1,140.9460 | 1,161.7853 | 1.4971 | 0.0154 | 1,198.0043 |

2.2 Overall Operational

Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |
| Energy | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 312.4749 | 312.4749 | 0.0125 | 3.4800e-003 | 313.8170 |
| Mobile | 1.5588 | 1.3669 | 6.4218 | 0.0102 | 0.7223 | 0.0150 | 0.7373 | 0.1936 | 0.0138 | 0.2074 | 0.0000 | 795.2610 | 795.2610 | 0.0425 | 0.0000 | 796.1541 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 16.0464 | 0.0000 | 16.0464 | 0.9483 | 0.0000 | 35.9611 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 4.7929 | 33.2086 | 38.0015 | 0.4937 | 0.0119 | 52.0628 |
| Total | 1.9956 | 1.4240 | 6.4706 | 0.0105 | 0.7223 | 0.0194 | 0.7416 | 0.1936 | 0.0181 | 0.2118 | 20.8393 | 1,140.9460 | 1,161.7853 | 1.4971 | 0.0154 | 1,197.9966 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.06 | 0.00 |

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1 | Demolition | Demolition | 1/1/2014 | 1/28/2014 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 1/29/2014 | 1/30/2014 | 5 | 2 | |
| 3 | Grading | Grading | 1/31/2014 | 2/5/2014 | 5 | 4 | |
| 4 | Building Construction | Building Construction | 2/6/2014 | 11/12/2014 | 5 | 200 | |
| 5 | Paving | Paving | 11/13/2014 | 11/26/2014 | 5 | 10 | |
| 6 | Architectural Coating | Architectural Coating | 11/27/2014 | 12/10/2014 | 5 | 10 | |

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 127,500; Non-Residential Outdoor: 42,500 (Architectural Coating – sqft)

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 174 | 0.41 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 255 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 6.00 | 226 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 6.00 | 125 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Grading | Graders | 1 | 6.00 | 174 | 0.41 |
| Paving | Paving Equipment | 1 | 8.00 | 130 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 255 | 0.40 |
| Building Construction | Welders | 2 | 6.00 | 46 | 0.45 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition | 3 | 8.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 6 | 27.00 | 14.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 5.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Demolition - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0242 | 0.2341 | 0.1735 | 1.8000e-004 | | 0.0138 | 0.0138 | | 0.0131 | 0.0131 | 0.0000 | 16.9426 | 16.9426 | 4.0500e-003 | 0.0000 | 17.0277 |
| Total | 0.0242 | 0.2341 | 0.1735 | 1.8000e-004 | 0.0000 | 0.0138 | 0.0138 | 0.0000 | 0.0131 | 0.0131 | 0.0000 | 16.9426 | 16.9426 | 4.0500e-003 | 0.0000 | 17.0277 |

3.2 Demolition - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0600e-003 | 1.5500e-003 | 0.0145 | 2.0000e-005 | 1.6800e-003 | 1.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.5480 | 1.5480 | 1.1000e-004 | 0.0000 | 1.5502 |
| Total | 4.0600e-003 | 1.5500e-003 | 0.0145 | 2.0000e-005 | 1.6800e-003 | 1.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.5480 | 1.5480 | 1.1000e-004 | 0.0000 | 1.5502 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0242 | 0.2341 | 0.1735 | 1.8000e-004 | | 0.0138 | 0.0138 | | 0.0131 | 0.0131 | 0.0000 | 16.9426 | 16.9426 | 4.0500e-003 | 0.0000 | 17.0277 |
| Total | 0.0242 | 0.2341 | 0.1735 | 1.8000e-004 | 0.0000 | 0.0138 | 0.0138 | 0.0000 | 0.0131 | 0.0131 | 0.0000 | 16.9426 | 16.9426 | 4.0500e-003 | 0.0000 | 17.0277 |

3.2 Demolition - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.0600e-003 | 1.5500e-003 | 0.0145 | 2.0000e-005 | 1.6800e-003 | 1.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.5480 | 1.5480 | 1.1000e-004 | 0.0000 | 1.5502 |
| Total | 4.0600e-003 | 1.5500e-003 | 0.0145 | 2.0000e-005 | 1.6800e-003 | 1.0000e-005 | 1.6900e-003 | 4.5000e-004 | 1.0000e-005 | 4.6000e-004 | 0.0000 | 1.5480 | 1.5480 | 1.1000e-004 | 0.0000 | 1.5502 |

3.3 Site Preparation - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8000e-003 | 0.0000 | 5.8000e-003 | 2.9500e-003 | 0.0000 | 2.9500e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5500e-003 | 0.0272 | 0.0171 | 2.0000e-005 | | 1.4800e-003 | 1.4800e-003 | | 1.3600e-003 | 1.3600e-003 | 0.0000 | 1.6521 | 1.6521 | 4.9000e-004 | 0.0000 | 1.6623 |
| Total | 2.5500e-003 | 0.0272 | 0.0171 | 2.0000e-005 | 5.8000e-003 | 1.4800e-003 | 7.2800e-003 | 2.9500e-003 | 1.3600e-003 | 4.3100e-003 | 0.0000 | 1.6521 | 1.6521 | 4.9000e-004 | 0.0000 | 1.6623 |

3.3 Site Preparation - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 1.6000e-004 | 1.4500e-003 | 0.0000 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 4.0000e-005 | 0.0000 | 5.0000e-005 | 0.0000 | 0.1548 | 0.1548 | 1.0000e-005 | 0.0000 | 0.1550 |
| Total | 4.1000e-004 | 1.6000e-004 | 1.4500e-003 | 0.0000 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 4.0000e-005 | 0.0000 | 5.0000e-005 | 0.0000 | 0.1548 | 0.1548 | 1.0000e-005 | 0.0000 | 0.1550 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8000e-003 | 0.0000 | 5.8000e-003 | 2.9500e-003 | 0.0000 | 2.9500e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.5500e-003 | 0.0272 | 0.0171 | 2.0000e-005 | | 1.4800e-003 | 1.4800e-003 | | 1.3600e-003 | 1.3600e-003 | 0.0000 | 1.6521 | 1.6521 | 4.9000e-004 | 0.0000 | 1.6623 |
| Total | 2.5500e-003 | 0.0272 | 0.0171 | 2.0000e-005 | 5.8000e-003 | 1.4800e-003 | 7.2800e-003 | 2.9500e-003 | 1.3600e-003 | 4.3100e-003 | 0.0000 | 1.6521 | 1.6521 | 4.9000e-004 | 0.0000 | 1.6623 |

3.3 Site Preparation - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 4.1000e-004 | 1.6000e-004 | 1.4500e-003 | 0.0000 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 4.0000e-005 | 0.0000 | 5.0000e-005 | 0.0000 | 0.1548 | 0.1548 | 1.0000e-005 | 0.0000 | 0.1550 |
| Total | 4.1000e-004 | 1.6000e-004 | 1.4500e-003 | 0.0000 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 4.0000e-005 | 0.0000 | 5.0000e-005 | 0.0000 | 0.1548 | 0.1548 | 1.0000e-005 | 0.0000 | 0.1550 |

3.4 Grading - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.8300e-003 | 0.0000 | 9.8300e-003 | 5.0500e-003 | 0.0000 | 5.0500e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.1500e-003 | 0.0444 | 0.0283 | 3.0000e-005 | | 2.4200e-003 | 2.4200e-003 | | 2.2300e-003 | 2.2300e-003 | 0.0000 | 2.7137 | 2.7137 | 8.0000e-004 | 0.0000 | 2.7306 |
| Total | 4.1500e-003 | 0.0444 | 0.0283 | 3.0000e-005 | 9.8300e-003 | 2.4200e-003 | 0.0123 | 5.0500e-003 | 2.2300e-003 | 7.2800e-003 | 0.0000 | 2.7137 | 2.7137 | 8.0000e-004 | 0.0000 | 2.7306 |

3.4 Grading - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.1000e-004 | 3.1000e-004 | 2.9000e-003 | 0.0000 | 3.4000e-004 | 0.0000 | 3.4000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.3096 | 0.3096 | 2.0000e-005 | 0.0000 | 0.3100 |
| Total | 8.1000e-004 | 3.1000e-004 | 2.9000e-003 | 0.0000 | 3.4000e-004 | 0.0000 | 3.4000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.3096 | 0.3096 | 2.0000e-005 | 0.0000 | 0.3100 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.8300e-003 | 0.0000 | 9.8300e-003 | 5.0500e-003 | 0.0000 | 5.0500e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.1500e-003 | 0.0444 | 0.0283 | 3.0000e-005 | | 2.4200e-003 | 2.4200e-003 | | 2.2300e-003 | 2.2300e-003 | 0.0000 | 2.7137 | 2.7137 | 8.0000e-004 | 0.0000 | 2.7306 |
| Total | 4.1500e-003 | 0.0444 | 0.0283 | 3.0000e-005 | 9.8300e-003 | 2.4200e-003 | 0.0123 | 5.0500e-003 | 2.2300e-003 | 7.2800e-003 | 0.0000 | 2.7137 | 2.7137 | 8.0000e-004 | 0.0000 | 2.7306 |

3.4 Grading - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 8.1000e-004 | 3.1000e-004 | 2.9000e-003 | 0.0000 | 3.4000e-004 | 0.0000 | 3.4000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.3096 | 0.3096 | 2.0000e-005 | 0.0000 | 0.3100 |
| Total | 8.1000e-004 | 3.1000e-004 | 2.9000e-003 | 0.0000 | 3.4000e-004 | 0.0000 | 3.4000e-004 | 9.0000e-005 | 0.0000 | 9.0000e-005 | 0.0000 | 0.3096 | 0.3096 | 2.0000e-005 | 0.0000 | 0.3100 |

3.5 Building Construction - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.2867 | 1.9626 | 1.2162 | 1.8100e-003 | | 0.1337 | 0.1337 | | 0.1284 | 0.1284 | 0.0000 | 159.0170 | 159.0170 | 0.0369 | 0.0000 | 159.7920 |
| Total | 0.2867 | 1.9626 | 1.2162 | 1.8100e-003 | | 0.1337 | 0.1337 | | 0.1284 | 0.1284 | 0.0000 | 159.0170 | 159.0170 | 0.0369 | 0.0000 | 159.7920 |

3.5 Building Construction - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.1363 | 0.3802 | 0.5284 | 7.6000e-004 | 0.0224 | 7.4100e-003 | 0.0298 | 6.3700e-003 | 6.8100e-003 | 0.0132 | 0.0000 | 70.3394 | 70.3394 | 6.3000e-004 | 0.0000 | 70.3526 |
| Worker | 0.1370 | 0.0524 | 0.4887 | 6.6000e-004 | 0.0566 | 4.9000e-004 | 0.0571 | 0.0151 | 4.4000e-004 | 0.0155 | 0.0000 | 52.2436 | 52.2436 | 3.6200e-003 | 0.0000 | 52.3197 |
| Total | 0.2733 | 0.4326 | 1.0171 | 1.4200e-003 | 0.0789 | 7.9000e-003 | 0.0868 | 0.0214 | 7.2500e-003 | 0.0287 | 0.0000 | 122.5830 | 122.5830 | 4.2500e-003 | 0.0000 | 122.6723 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.2867 | 1.9626 | 1.2161 | 1.8100e-003 | | 0.1337 | 0.1337 | | 0.1284 | 0.1284 | 0.0000 | 159.0168 | 159.0168 | 0.0369 | 0.0000 | 159.7918 |
| Total | 0.2867 | 1.9626 | 1.2161 | 1.8100e-003 | | 0.1337 | 0.1337 | | 0.1284 | 0.1284 | 0.0000 | 159.0168 | 159.0168 | 0.0369 | 0.0000 | 159.7918 |

3.5 Building Construction - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.1363 | 0.3802 | 0.5284 | 7.6000e-004 | 0.0224 | 7.4100e-003 | 0.0298 | 6.3700e-003 | 6.8100e-003 | 0.0132 | 0.0000 | 70.3394 | 70.3394 | 6.3000e-004 | 0.0000 | 70.3526 |
| Worker | 0.1370 | 0.0524 | 0.4887 | 6.6000e-004 | 0.0566 | 4.9000e-004 | 0.0571 | 0.0151 | 4.4000e-004 | 0.0155 | 0.0000 | 52.2436 | 52.2436 | 3.6200e-003 | 0.0000 | 52.3197 |
| Total | 0.2733 | 0.4326 | 1.0171 | 1.4200e-003 | 0.0789 | 7.9000e-003 | 0.0868 | 0.0214 | 7.2500e-003 | 0.0287 | 0.0000 | 122.5830 | 122.5830 | 4.2500e-003 | 0.0000 | 122.6723 |

3.6 Paving - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 7.1500e-003 | 0.0755 | 0.0458 | 7.0000e-005 | | 4.5900e-003 | 4.5900e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 6.3336 | 6.3336 | 1.8400e-003 | 0.0000 | 6.3722 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 7.1500e-003 | 0.0755 | 0.0458 | 7.0000e-005 | | 4.5900e-003 | 4.5900e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 6.3336 | 6.3336 | 1.8400e-003 | 0.0000 | 6.3722 |

3.6 Paving - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.3000e-003 | 1.2600e-003 | 0.0118 | 2.0000e-005 | 1.3600e-003 | 1.0000e-005 | 1.3700e-003 | 3.6000e-004 | 1.0000e-005 | 3.7000e-004 | 0.0000 | 1.2577 | 1.2577 | 9.0000e-005 | 0.0000 | 1.2596 |
| Total | 3.3000e-003 | 1.2600e-003 | 0.0118 | 2.0000e-005 | 1.3600e-003 | 1.0000e-005 | 1.3700e-003 | 3.6000e-004 | 1.0000e-005 | 3.7000e-004 | 0.0000 | 1.2577 | 1.2577 | 9.0000e-005 | 0.0000 | 1.2596 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 7.1500e-003 | 0.0755 | 0.0458 | 7.0000e-005 | | 4.5900e-003 | 4.5900e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 6.3336 | 6.3336 | 1.8400e-003 | 0.0000 | 6.3722 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 7.1500e-003 | 0.0755 | 0.0458 | 7.0000e-005 | | 4.5900e-003 | 4.5900e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 6.3336 | 6.3336 | 1.8400e-003 | 0.0000 | 6.3722 |

3.6 Paving - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.3000e-003 | 1.2600e-003 | 0.0118 | 2.0000e-005 | 1.3600e-003 | 1.0000e-005 | 1.3700e-003 | 3.6000e-004 | 1.0000e-005 | 3.7000e-004 | 0.0000 | 1.2577 | 1.2577 | 9.0000e-005 | 0.0000 | 1.2596 |
| Total | 3.3000e-003 | 1.2600e-003 | 0.0118 | 2.0000e-005 | 1.3600e-003 | 1.0000e-005 | 1.3700e-003 | 3.6000e-004 | 1.0000e-005 | 3.7000e-004 | 0.0000 | 1.2577 | 1.2577 | 9.0000e-005 | 0.0000 | 1.2596 |

3.7 Architectural Coating - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9849 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.2300e-003 | 0.0139 | 9.6100e-003 | 1.0000e-005 | | 1.2300e-003 | 1.2300e-003 | | 1.2300e-003 | 1.2300e-003 | 0.0000 | 1.2766 | 1.2766 | 1.8000e-004 | 0.0000 | 1.2805 |
| Total | 0.9872 | 0.0139 | 9.6100e-003 | 1.0000e-005 | | 1.2300e-003 | 1.2300e-003 | | 1.2300e-003 | 1.2300e-003 | 0.0000 | 1.2766 | 1.2766 | 1.8000e-004 | 0.0000 | 1.2805 |

3.7 Architectural Coating - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2700e-003 | 4.9000e-004 | 4.5300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4837 | 0.4837 | 3.0000e-005 | 0.0000 | 0.4844 |
| Total | 1.2700e-003 | 4.9000e-004 | 4.5300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4837 | 0.4837 | 3.0000e-005 | 0.0000 | 0.4844 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9849 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 2.2300e-003 | 0.0139 | 9.6100e-003 | 1.0000e-005 | | 1.2300e-003 | 1.2300e-003 | | 1.2300e-003 | 1.2300e-003 | 0.0000 | 1.2766 | 1.2766 | 1.8000e-004 | 0.0000 | 1.2805 |
| Total | 0.9872 | 0.0139 | 9.6100e-003 | 1.0000e-005 | | 1.2300e-003 | 1.2300e-003 | | 1.2300e-003 | 1.2300e-003 | 0.0000 | 1.2766 | 1.2766 | 1.8000e-004 | 0.0000 | 1.2805 |

3.7 Architectural Coating - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2700e-003 | 4.9000e-004 | 4.5300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4837 | 0.4837 | 3.0000e-005 | 0.0000 | 0.4844 |
| Total | 1.2700e-003 | 4.9000e-004 | 4.5300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.3000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | 0.0000 | 0.4837 | 0.4837 | 3.0000e-005 | 0.0000 | 0.4844 |

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 1.5588 | 1.3669 | 6.4218 | 0.0102 | 0.7223 | 0.0150 | 0.7373 | 0.1936 | 0.0138 | 0.2074 | 0.0000 | 795.2610 | 795.2610 | 0.0425 | 0.0000 | 796.1541 |
| Unmitigated | 1.5588 | 1.3669 | 6.4218 | 0.0102 | 0.7223 | 0.0150 | 0.7373 | 0.1936 | 0.0138 | 0.2074 | 0.0000 | 795.2610 | 795.2610 | 0.0425 | 0.0000 | 796.1541 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|-------------------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Office Building | 935.85 | 201.45 | 83.30 | 1,957,818 | 1,957,818 |
| Total | 935.85 | 201.45 | 83.30 | 1,957,818 | 1,957,818 |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|-------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Office Building | 14.70 | 6.60 | 6.60 | 33.00 | 48.00 | 19.00 | 77 | 19 | 4 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.437503 | 0.048903 | 0.229570 | 0.168524 | 0.073101 | 0.008351 | 0.010919 | 0.009240 | 0.001556 | 0.001398 | 0.007311 | 0.000716 | 0.002906 |

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 250.2420 | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 250.2420 | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |
| NaturalGas Mitigated | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |
| NaturalGas Unmitigated | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |

5.2 Energy by Land Use - NaturalGas

Unmitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Office Building | 1.1662e+006 | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |
| Total | | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |

5.2 Energy by Land Use - NaturalGas

Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Office Building | 1.1662e+006 | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |
| Total | | 6.2900e-003 | 0.0572 | 0.0480 | 3.4000e-004 | | 4.3400e-003 | 4.3400e-003 | | 4.3400e-003 | 4.3400e-003 | 0.0000 | 62.2329 | 62.2329 | 1.1900e-003 | 1.1400e-003 | 62.6116 |

5.3 Energy by Land Use - Electricity

Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use | kWh/yr | MT/yr | | | |
| General Office Building | 860200 | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |
| Total | | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |

5.3 Energy by Land Use - Electricity

Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use | kWh/yr | MT/yr | | | |
| General Office Building | 860200 | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |
| Total | | 250.2420 | 0.0113 | 2.3400e-003 | 251.2054 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|-------------|-------------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-------------|-------------|--------|--------|-------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |
| Unmitigated | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |

6.2 Area by SubCategory

Unmitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0985 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.3320 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 8.0000e-005 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |
| Total | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |

Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Consumer Products | 0.3320 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 8.0000e-005 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |
| Architectural Coating | 0.0985 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.4305 | 1.0000e-005 | 8.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.5200e-003 | 1.5200e-003 | 0.0000 | 0.0000 | 1.6100e-003 |

7.0 Water Detail

7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|--------|---------|
| Category | MT/yr | | | |
| Mitigated | 38.0015 | 0.4937 | 0.0119 | 52.0628 |
| Unmitigated | 38.0015 | 0.4938 | 0.0119 | 52.0704 |

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|--------------------|----------------|---------------|---------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Office Building | 15.1074 / 9.25935 | 38.0015 | 0.4938 | 0.0119 | 52.0704 |
| Total | | 38.0015 | 0.4938 | 0.0119 | 52.0704 |

7.2 Water by Land Use

Mitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|--------------------|----------------|---------------|---------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Office Building | 15.1074 / 9.25935 | 38.0015 | 0.4937 | 0.0119 | 52.0628 |
| Total | | 38.0015 | 0.4937 | 0.0119 | 52.0628 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|--------|---------|
| | MT/yr | | | |
| Mitigated | 16.0464 | 0.9483 | 0.0000 | 35.9611 |
| Unmitigated | 16.0464 | 0.9483 | 0.0000 | 35.9611 |

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------------|----------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Office Building | 79.05 | 16.0464 | 0.9483 | 0.0000 | 35.9611 |
| Total | | 16.0464 | 0.9483 | 0.0000 | 35.9611 |

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------------|----------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Office Building | 79.05 | 16.0464 | 0.9483 | 0.0000 | 35.9611 |
| Total | | 16.0464 | 0.9483 | 0.0000 | 35.9611 |

9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

10.0 Vegetation

Beale AFB DSG Parking Lot
Yuba County, Annual

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|-------------|--------|--------|-------------|--------------------|------------|
| Parking Lot | 300.00 | Space | 2.70 | 120,000.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|--------------------------------|--------------------------------|--------------------------------|-------|----------------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 72 |
| Climate Zone | 3 | | | Operational Year | 2016 |
| Utility Company | Pacific Gas & Electric Company | | | | |
| CO2 Intensity (lb/MWhr) | 641.35 | CH4 Intensity (lb/MWhr) | 0.029 | N2O Intensity (lb/MWhr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Off-road Equipment -

Grading -

Construction Phase -

Off-road Equipment - Construction of an open space parking lot does not need a generator set with welder in general particularly over the entire construction period.

Trips and VMT - Add 12 miles on-base travel distance for each trip.

Off-road Equipment -

Area Coating - No area coatings are needed for an open space parking lot.

Construction Off-road Equipment Mitigation -

Landscape Equipment - No routine landscape is needed for a parking lot,

| Table Name | Column Name | Default Value | New Value |
|---------------------------|------------------------------|---------------|-----------|
| tblAreaCoating | Area_Nonresidential_Interior | 5400 | 0 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 1.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 0.7321 | 2.8652 | 2.9988 | 4.1900e-003 | 0.1778 | 0.1407 | 0.3185 | 0.0525 | 0.1304 | 0.1829 | 0.0000 | 371.8871 | 371.8871 | 0.0506 | 0.0000 | 372.9497 |
| 2015 | 0.0368 | 0.0110 | 0.0138 | 2.0000e-005 | 8.4000e-004 | 8.9000e-004 | 1.7300e-003 | 2.2000e-004 | 8.9000e-004 | 1.1100e-003 | 0.0000 | 1.7662 | 1.7662 | 1.8000e-004 | 0.0000 | 1.7700 |
| Total | 0.7689 | 2.8762 | 3.0126 | 4.2100e-003 | 0.1787 | 0.1416 | 0.3202 | 0.0527 | 0.1313 | 0.1840 | 0.0000 | 373.6534 | 373.6534 | 0.0508 | 0.0000 | 374.7197 |

Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 0.7321 | 2.8652 | 2.9988 | 4.1900e-003 | 0.1778 | 0.1407 | 0.3185 | 0.0525 | 0.1304 | 0.1829 | 0.0000 | 371.8870 | 371.8870 | 0.0506 | 0.0000 | 372.9495 |
| 2015 | 0.0368 | 0.0110 | 0.0138 | 2.0000e-005 | 8.4000e-004 | 8.9000e-004 | 1.7300e-003 | 2.2000e-004 | 8.9000e-004 | 1.1100e-003 | 0.0000 | 1.7662 | 1.7662 | 1.8000e-004 | 0.0000 | 1.7700 |
| Total | 0.7689 | 2.8762 | 3.0126 | 4.2100e-003 | 0.1787 | 0.1416 | 0.3202 | 0.0527 | 0.1313 | 0.1840 | 0.0000 | 373.6532 | 373.6532 | 0.0508 | 0.0000 | 374.7195 |

[illegible]

2.2 Overall Operational

Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 30.7203 | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | 0.0000 | 1.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 1.0000e-005 | 0.0000 | 30.7256 | 30.7256 | 1.4100e-003 | 2.9000e-004 | 30.8442 |

2.2 Overall Operational

Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 30.7203 | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |
| Mobile | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | 0.0000 | 1.0000e-005 | 1.0000e-005 | 0.0000 | 1.0000e-005 | 1.0000e-005 | 0.0000 | 30.7256 | 30.7256 | 1.4100e-003 | 2.9000e-004 | 30.8442 |

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

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1 | Demolition | Demolition | 1/1/2014 | 1/28/2014 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 1/29/2014 | 1/31/2014 | 5 | 3 | |
| 3 | Grading | Grading | 2/1/2014 | 2/10/2014 | 5 | 6 | |
| 4 | Building Construction | Building Construction | 2/11/2014 | 12/15/2014 | 5 | 220 | |
| 5 | Paving | Paving | 12/16/2014 | 12/29/2014 | 5 | 10 | |
| 6 | Architectural Coating | Architectural Coating | 12/30/2014 | 1/12/2015 | 5 | 10 | |

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,400; Non-Residential Outdoor: 1,800 (Architectural Coating – sqft)

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 174 | 0.41 |
| Site Preparation | Scrapers | 1 | 8.00 | 361 | 0.48 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Grading | Graders | 1 | 8.00 | 174 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 8.00 | 226 | 0.29 |
| Building Construction | Forklifts | 1 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 1.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Welders | 1 | 1.00 | 46 | 0.45 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 8.00 | 125 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 130 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition | 5 | 13.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 5 | 50.00 | 20.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 10.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

Clean Paved Roads

3.2 Demolition - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0718 |
| Total | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0718 |

3.2 Demolition - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |
| Total | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0717 |
| Total | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0717 |

3.2 Demolition - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |
| Total | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |

3.3 Site Preparation - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | | 2.4400e-003 | 2.4400e-003 | | 2.2400e-003 | 2.2400e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |
| Total | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | 2.3900e-003 | 2.4400e-003 | 4.8300e-003 | 2.6000e-004 | 2.2400e-003 | 2.5000e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |

3.3 Site Preparation - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |
| Total | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | | 2.4400e-003 | 2.4400e-003 | | 2.2400e-003 | 2.2400e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |
| Total | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | 2.3900e-003 | 2.4400e-003 | 4.8300e-003 | 2.6000e-004 | 2.2400e-003 | 2.5000e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |

3.3 Site Preparation - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |
| Total | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |

3.4 Grading - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0197 | 0.0000 | 0.0197 | 0.0101 | 0.0000 | 0.0101 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | | 5.3300e-003 | 5.3300e-003 | | 4.9000e-003 | 4.9000e-003 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |
| Total | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | 0.0197 | 5.3300e-003 | 0.0250 | 0.0101 | 4.9000e-003 | 0.0150 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |

3.4 Grading - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |
| Total | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0197 | 0.0000 | 0.0197 | 0.0101 | 0.0000 | 0.0101 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | | 5.3300e-003 | 5.3300e-003 | | 4.9000e-003 | 4.9000e-003 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |
| Total | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | 0.0197 | 5.3300e-003 | 0.0250 | 0.0101 | 4.9000e-003 | 0.0150 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |

3.4 Grading - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |
| Total | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |

3.5 Building Construction - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1588 | 1.6021 | 0.7519 | 1.1500e-003 | | 0.0942 | 0.0942 | | 0.0873 | 0.0873 | 0.0000 | 108.9987 | 108.9987 | 0.0308 | 0.0000 | 109.6459 |
| Total | 0.1588 | 1.6021 | 0.7519 | 1.1500e-003 | | 0.0942 | 0.0942 | | 0.0873 | 0.0873 | 0.0000 | 108.9987 | 108.9987 | 0.0308 | 0.0000 | 109.6459 |

3.5 Building Construction - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.2142 | 0.5974 | 0.8303 | 1.2000e-003 | 0.0352 | 0.0117 | 0.0468 | 0.0100 | 0.0107 | 0.0207 | 0.0000 | 110.5334 | 110.5334 | 9.9000e-004 | 0.0000 | 110.5541 |
| Worker | 0.2790 | 0.1068 | 0.9956 | 1.3400e-003 | 0.1152 | 1.0100e-003 | 0.1162 | 0.0307 | 9.0000e-004 | 0.0316 | 0.0000 | 106.4222 | 106.4222 | 7.3800e-003 | 0.0000 | 106.5772 |
| Total | 0.4932 | 0.7043 | 1.8259 | 2.5400e-003 | 0.1504 | 0.0127 | 0.1630 | 0.0407 | 0.0116 | 0.0523 | 0.0000 | 216.9555 | 216.9555 | 8.3700e-003 | 0.0000 | 217.1313 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1588 | 1.6021 | 0.7519 | 1.1500e-003 | | 0.0942 | 0.0942 | | 0.0873 | 0.0873 | 0.0000 | 108.9986 | 108.9986 | 0.0308 | 0.0000 | 109.6457 |
| Total | 0.1588 | 1.6021 | 0.7519 | 1.1500e-003 | | 0.0942 | 0.0942 | | 0.0873 | 0.0873 | 0.0000 | 108.9986 | 108.9986 | 0.0308 | 0.0000 | 109.6457 |

3.5 Building Construction - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.2142 | 0.5974 | 0.8303 | 1.2000e-003 | 0.0352 | 0.0117 | 0.0468 | 0.0100 | 0.0107 | 0.0207 | 0.0000 | 110.5334 | 110.5334 | 9.9000e-004 | 0.0000 | 110.5541 |
| Worker | 0.2790 | 0.1068 | 0.9956 | 1.3400e-003 | 0.1152 | 1.0100e-003 | 0.1162 | 0.0307 | 9.0000e-004 | 0.0316 | 0.0000 | 106.4222 | 106.4222 | 7.3800e-003 | 0.0000 | 106.5772 |
| Total | 0.4932 | 0.7043 | 1.8259 | 2.5400e-003 | 0.1504 | 0.0127 | 0.1630 | 0.0407 | 0.0116 | 0.0523 | 0.0000 | 216.9555 | 216.9555 | 8.3700e-003 | 0.0000 | 217.1313 |

3.6 Paving - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |
| Paving | 3.5400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.0134 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |

3.6 Paving - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |
| Total | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |
| Paving | 3.5400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 0.0134 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |

3.6 Paving - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |
| Total | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |

3.7 Architectural Coating - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|--------------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 8.3400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.5000e-004 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |
| Total | 8.7900e-003 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |

3.7 Architectural Coating - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.1000e-004 | 1.9000e-004 | 1.8100e-003 | 0.0000 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1935 | 0.1935 | 1.0000e-005 | 0.0000 | 0.1938 |
| Total | 5.1000e-004 | 1.9000e-004 | 1.8100e-003 | 0.0000 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1935 | 0.1935 | 1.0000e-005 | 0.0000 | 0.1938 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|--------------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 8.3400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.5000e-004 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |
| Total | 8.7900e-003 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |

3.7 Architectural Coating - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 5.1000e-004 | 1.9000e-004 | 1.8100e-003 | 0.0000 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1935 | 0.1935 | 1.0000e-005 | 0.0000 | 0.1938 |
| Total | 5.1000e-004 | 1.9000e-004 | 1.8100e-003 | 0.0000 | 2.1000e-004 | 0.0000 | 2.1000e-004 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 0.0000 | 0.1935 | 0.1935 | 1.0000e-005 | 0.0000 | 0.1938 |

3.7 Architectural Coating - 2015**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0334 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.6300e-003 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |
| Total | 0.0350 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |

3.7 Architectural Coating - 2015**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.7700e-003 | 6.7000e-004 | 6.1600e-003 | 1.0000e-005 | 8.4000e-004 | 1.0000e-005 | 8.4000e-004 | 2.2000e-004 | 1.0000e-005 | 2.3000e-004 | 0.0000 | 0.7449 | 0.7449 | 5.0000e-005 | 0.0000 | 0.7459 |
| Total | 1.7700e-003 | 6.7000e-004 | 6.1600e-003 | 1.0000e-005 | 8.4000e-004 | 1.0000e-005 | 8.4000e-004 | 2.2000e-004 | 1.0000e-005 | 2.3000e-004 | 0.0000 | 0.7449 | 0.7449 | 5.0000e-005 | 0.0000 | 0.7459 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0334 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.6300e-003 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |
| Total | 0.0350 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.7700e-003 | 6.7000e-004 | 6.1600e-003 | 1.0000e-005 | 8.4000e-004 | 1.0000e-005 | 8.4000e-004 | 2.2000e-004 | 1.0000e-005 | 2.3000e-004 | 0.0000 | 0.7449 | 0.7449 | 5.0000e-005 | 0.0000 | 0.7459 |
| Total | 1.7700e-003 | 6.7000e-004 | 6.1600e-003 | 1.0000e-005 | 8.4000e-004 | 1.0000e-005 | 8.4000e-004 | 2.2000e-004 | 1.0000e-005 | 2.3000e-004 | 0.0000 | 0.7449 | 0.7449 | 5.0000e-005 | 0.0000 | 0.7459 |

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

[illegible]

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|-------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Total | 0.00 | 0.00 | 0.00 | | |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|-------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Parking Lot | 14.70 | 6.60 | 6.60 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.437503 | 0.048903 | 0.229570 | 0.168524 | 0.073101 | 0.008351 | 0.010919 | 0.009240 | 0.001556 | 0.001398 | 0.007311 | 0.000716 | 0.002906 |

5.0 Energy Detail**4.4 Fleet Mix**

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

5.2 Energy by Land Use - NaturalGas

Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

5.3 Energy by Land Use - Electricity

Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|--------------|-----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kWh/yr | MT/yr | | | |
| Parking Lot | 105600 | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |
| Total | | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |

5.3 Energy by Land Use - Electricity

Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|--------------|-----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kWh/yr | MT/yr | | | |
| Parking Lot | 105600 | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |
| Total | | 30.7203 | 1.3900e-003 | 2.9000e-004 | 30.8385 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|-------------|-------------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-------------|-------------|-------------|--------|-------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |
| Unmitigated | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |

6.2 Area by SubCategory

Unmitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 1.0400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.4687 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 2.8000e-004 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |
| Total | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |

Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 1.0400e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.4687 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 2.8000e-004 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |
| Total | 0.4700 | 3.0000e-005 | 2.8300e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | 0.0000 | 5.3600e-003 | 5.3600e-003 | 2.0000e-005 | 0.0000 | 5.6800e-003 |

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|---------------|---------------|
| Land Use | Mgal | MT/yr | | | |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

7.2 Water by Land Use

Mitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|---------------|---------------|
| Land Use | Mgal | MT/yr | | | |
| Parking Lot | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|--------------|-------------------|---------------|---------------|---------------|---------------|
| Land Use | tons | MT/yr | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|--------------|-------------------|---------------|---------------|---------------|---------------|
| Land Use | tons | MT/yr | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

10.0 Vegetation

Beale AFB DCGS
Yuba County, Annual

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|-------------------------|--------|----------|-------------|--------------------|------------|
| General Office Building | 105.00 | 1000sqft | 2.41 | 105,000.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|--------------------------------|--------------------------------|--------------------------------|-------|----------------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 72 |
| Climate Zone | 3 | | | Operational Year | 2016 |
| Utility Company | Pacific Gas & Electric Company | | | | |
| CO2 Intensity (lb/MWhr) | 641.35 | CH4 Intensity (lb/MWhr) | 0.029 | N2O Intensity (lb/MWhr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment - To build a building in 220 days, the two welders will not need to operate continuously over the entire period with 100 percent usage.

Off-road Equipment -

Only some sidewalks needs to be demolished and there is no need to use three backhoes on site during demo.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Add 12 miles on-site travel distance.

On-road Fugitive Dust -

Demolition -

Grading -

Vehicle Trips -

Road Dust -

Area Coating -

Landscape Equipment -

Construction Off-road Equipment Mitigation - using at least Tier 2 engine

| Table Name | Column Name | Default Value | New Value |
|---------------------------|----------------------------|---------------|-----------|
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 2.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 6.00 |
| tblProjectCharacteristics | OperationalYear | 2014 | 2016 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 32.00 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | VendorTripLength | 6.60 | 18.60 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |
| tblTripsAndVMT | WorkerTripLength | 16.80 | 28.80 |

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 1.0470 | 3.7845 | 3.3685 | 4.7400e-003 | 0.1356 | 0.2227 | 0.3583 | 0.0411 | 0.2112 | 0.2524 | 0.0000 | 418.2099 | 418.2099 | 0.0671 | 0.0000 | 419.6180 |
| 2015 | 0.9762 | 0.0108 | 0.0119 | 2.0000e-005 | 5.9000e-004 | 8.9000e-004 | 1.4700e-003 | 1.6000e-004 | 8.9000e-004 | 1.0400e-003 | 0.0000 | 1.5428 | 1.5428 | 1.7000e-004 | 0.0000 | 1.5462 |
| Total | 2.0232 | 3.7953 | 3.3805 | 4.7600e-003 | 0.1362 | 0.2236 | 0.3598 | 0.0413 | 0.2121 | 0.2534 | 0.0000 | 419.7527 | 419.7527 | 0.0672 | 0.0000 | 421.1643 |

Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------|---------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|----------|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2014 | 1.0470 | 3.7845 | 3.3685 | 4.7400e-003 | 0.1356 | 0.2227 | 0.3583 | 0.0411 | 0.2112 | 0.2524 | 0.0000 | 418.2096 | 418.2096 | 0.0671 | 0.0000 | 419.6177 |
| 2015 | 0.9762 | 0.0108 | 0.0119 | 2.0000e-005 | 5.9000e-004 | 8.9000e-004 | 1.4700e-003 | 1.6000e-004 | 8.9000e-004 | 1.0400e-003 | 0.0000 | 1.5428 | 1.5428 | 1.7000e-004 | 0.0000 | 1.5462 |
| Total | 2.0232 | 3.7953 | 3.3805 | 4.7600e-003 | 0.1362 | 0.2236 | 0.3598 | 0.0413 | 0.2121 | 0.2534 | 0.0000 | 419.7524 | 419.7524 | 0.0672 | 0.0000 | 421.1640 |

[illegible]

2.2 Overall Operational

Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.5318 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |
| Energy | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 385.9984 | 385.9984 | 0.0155 | 4.3000e-003 | 387.6563 |
| Mobile | 1.9256 | 1.6885 | 7.9328 | 0.0126 | 0.8922 | 0.0185 | 0.9108 | 0.2392 | 0.0170 | 0.2562 | 0.0000 | 982.3812 | 982.3812 | 0.0525 | 0.0000 | 983.4845 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 19.8221 | 0.0000 | 19.8221 | 1.1715 | 0.0000 | 44.4225 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 5.9206 | 41.0224 | 46.9430 | 0.6100 | 0.0147 | 64.3223 |
| Total | 2.4652 | 1.7591 | 7.9931 | 0.0130 | 0.8922 | 0.0239 | 0.9161 | 0.2392 | 0.0224 | 0.2616 | 25.7427 | 1,409.4039 | 1,435.1466 | 1.8494 | 0.0190 | 1,479.8876 |

2.2 Overall Operational

Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|-------------------|-------------------|---------------|---------------|-------------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.5318 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |
| Energy | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 385.9984 | 385.9984 | 0.0155 | 4.3000e-003 | 387.6563 |
| Mobile | 1.9256 | 1.6885 | 7.9328 | 0.0126 | 0.8922 | 0.0185 | 0.9108 | 0.2392 | 0.0170 | 0.2562 | 0.0000 | 982.3812 | 982.3812 | 0.0525 | 0.0000 | 983.4845 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 19.8221 | 0.0000 | 19.8221 | 1.1715 | 0.0000 | 44.4225 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 5.9206 | 41.0224 | 46.9430 | 0.6099 | 0.0147 | 64.3128 |
| Total | 2.4652 | 1.7591 | 7.9931 | 0.0130 | 0.8922 | 0.0239 | 0.9161 | 0.2392 | 0.0224 | 0.2616 | 25.7427 | 1,409.4039 | 1,435.1466 | 1.8493 | 0.0190 | 1,479.8782 |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------------------|-------------|-------------|-------------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Percent Reduction | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.11 | 0.00 |

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|-----------------------|-----------------------|------------|------------|---------------|----------|-------------------|
| 1 | Demolition | Demolition | 1/1/2014 | 1/28/2014 | 5 | 20 | |
| 2 | Site Preparation | Site Preparation | 1/29/2014 | 1/31/2014 | 5 | 3 | |
| 3 | Grading | Grading | 2/1/2014 | 2/10/2014 | 5 | 6 | |
| 4 | Building Construction | Building Construction | 2/11/2014 | 12/15/2014 | 5 | 220 | |
| 5 | Paving | Paving | 12/16/2014 | 12/29/2014 | 5 | 10 | |
| 6 | Architectural Coating | Architectural Coating | 12/30/2014 | 1/12/2015 | 5 | 10 | |

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 157,500; Non-Residential Outdoor: 52,500 (Architectural Coating – sqft)

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|-----------------------|---------------------------|--------|-------------|-------------|-------------|
| Demolition | Concrete/Industrial Saws | 1 | 8.00 | 81 | 0.73 |
| Demolition | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Demolition | Tractors/Loaders/Backhoes | 3 | 8.00 | 97 | 0.37 |
| Site Preparation | Graders | 1 | 8.00 | 174 | 0.41 |
| Site Preparation | Scrapers | 1 | 8.00 | 361 | 0.48 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Grading | Graders | 1 | 8.00 | 174 | 0.41 |
| Grading | Rubber Tired Dozers | 1 | 8.00 | 255 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | 2 | 7.00 | 97 | 0.37 |
| Building Construction | Cranes | 1 | 8.00 | 226 | 0.29 |
| Building Construction | Forklifts | 2 | 7.00 | 89 | 0.20 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Building Construction | Welders | 2 | 6.00 | 46 | 0.45 |
| Paving | Cement and Mortar Mixers | 1 | 8.00 | 9 | 0.56 |
| Paving | Pavers | 1 | 8.00 | 125 | 0.42 |
| Paving | Paving Equipment | 1 | 8.00 | 130 | 0.36 |
| Paving | Rollers | 2 | 8.00 | 80 | 0.38 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |

Trips and VMT

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|-----------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Demolition | 5 | 13.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 4 | 10.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 34.00 | 17.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 6 | 15.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 7.00 | 0.00 | 0.00 | 28.80 | 18.60 | 32.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

3.2 Demolition - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0718 |
| Total | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | 0.0000 | 0.0194 | 0.0194 | 0.0000 | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0718 |

3.2 Demolition - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |
| Total | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|--------------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | | 0.0194 | 0.0194 | | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0717 |
| Total | 0.0316 | 0.3048 | 0.2219 | 2.5000e-004 | 0.0000 | 0.0194 | 0.0194 | 0.0000 | 0.0182 | 0.0182 | 0.0000 | 22.9494 | 22.9494 | 5.8300e-003 | 0.0000 | 23.0717 |

3.2 Demolition - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |
| Total | 6.5900e-003 | 2.5200e-003 | 0.0235 | 3.0000e-005 | 2.7200e-003 | 2.0000e-005 | 2.7500e-003 | 7.2000e-004 | 2.0000e-005 | 7.5000e-004 | 0.0000 | 2.5154 | 2.5154 | 1.7000e-004 | 0.0000 | 2.5191 |

3.3 Site Preparation - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | | 2.4400e-003 | 2.4400e-003 | | 2.2400e-003 | 2.2400e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |
| Total | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | 2.3900e-003 | 2.4400e-003 | 4.8300e-003 | 2.6000e-004 | 2.2400e-003 | 2.5000e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |

3.3 Site Preparation - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |
| Total | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.3900e-003 | 0.0000 | 2.3900e-003 | 2.6000e-004 | 0.0000 | 2.6000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | | 2.4400e-003 | 2.4400e-003 | | 2.2400e-003 | 2.2400e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |
| Total | 4.2800e-003 | 0.0496 | 0.0285 | 4.0000e-005 | 2.3900e-003 | 2.4400e-003 | 4.8300e-003 | 2.6000e-004 | 2.2400e-003 | 2.5000e-003 | 0.0000 | 3.4495 | 3.4495 | 1.0200e-003 | 0.0000 | 3.4709 |

3.3 Site Preparation - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |
| Total | 6.1000e-004 | 2.3000e-004 | 2.1700e-003 | 0.0000 | 2.5000e-004 | 0.0000 | 2.5000e-004 | 7.0000e-005 | 0.0000 | 7.0000e-005 | 0.0000 | 0.2322 | 0.2322 | 2.0000e-005 | 0.0000 | 0.2325 |

3.4 Grading - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0197 | 0.0000 | 0.0197 | 0.0101 | 0.0000 | 0.0101 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | | 5.3300e-003 | 5.3300e-003 | | 4.9000e-003 | 4.9000e-003 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |
| Total | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | 0.0197 | 5.3300e-003 | 0.0250 | 0.0101 | 4.9000e-003 | 0.0150 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |

3.4 Grading - 2014

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |
| Total | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0197 | 0.0000 | 0.0197 | 0.0101 | 0.0000 | 0.0101 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | | 5.3300e-003 | 5.3300e-003 | | 4.9000e-003 | 4.9000e-003 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |
| Total | 8.9500e-003 | 0.0949 | 0.0609 | 6.0000e-005 | 0.0197 | 5.3300e-003 | 0.0250 | 0.0101 | 4.9000e-003 | 0.0150 | 0.0000 | 5.9531 | 5.9531 | 1.7600e-003 | 0.0000 | 5.9900 |

3.4 Grading - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |
| Total | 1.5200e-003 | 5.8000e-004 | 5.4300e-003 | 1.0000e-005 | 6.3000e-004 | 1.0000e-005 | 6.3000e-004 | 1.7000e-004 | 0.0000 | 1.7000e-004 | 0.0000 | 0.5805 | 0.5805 | 4.0000e-005 | 0.0000 | 0.5813 |

3.5 Building Construction - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.3638 | 2.6452 | 1.5653 | 2.3200e-003 | | 0.1783 | 0.1783 | | 0.1700 | 0.1700 | 0.0000 | 206.0146 | 206.0146 | 0.0498 | 0.0000 | 207.0601 |
| Total | 0.3638 | 2.6452 | 1.5653 | 2.3200e-003 | | 0.1783 | 0.1783 | | 0.1700 | 0.1700 | 0.0000 | 206.0146 | 206.0146 | 0.0498 | 0.0000 | 207.0601 |

3.5 Building Construction - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|--------------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.1821 | 0.5078 | 0.7058 | 1.0200e-003 | 0.0299 | 9.9000e-003 | 0.0398 | 8.5100e-003 | 9.1000e-003 | 0.0176 | 0.0000 | 93.9534 | 93.9534 | 8.4000e-004 | 0.0000 | 93.9710 |
| Worker | 0.1897 | 0.0726 | 0.6770 | 9.1000e-004 | 0.0784 | 6.8000e-004 | 0.0790 | 0.0208 | 6.1000e-004 | 0.0215 | 0.0000 | 72.3671 | 72.3671 | 5.0200e-003 | 0.0000 | 72.4725 |
| Total | 0.3718 | 0.5805 | 1.3827 | 1.9300e-003 | 0.1082 | 0.0106 | 0.1188 | 0.0294 | 9.7100e-003 | 0.0391 | 0.0000 | 166.3204 | 166.3204 | 5.8600e-003 | 0.0000 | 166.4435 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-----------------|-----------------|---------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.3638 | 2.6452 | 1.5653 | 2.3200e-003 | | 0.1783 | 0.1783 | | 0.1700 | 0.1700 | 0.0000 | 206.0144 | 206.0144 | 0.0498 | 0.0000 | 207.0599 |
| Total | 0.3638 | 2.6452 | 1.5653 | 2.3200e-003 | | 0.1783 | 0.1783 | | 0.1700 | 0.1700 | 0.0000 | 206.0144 | 206.0144 | 0.0498 | 0.0000 | 207.0599 |

3.5 Building Construction - 2014

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|--------------------|---------------|---------------|-----------------|-----------------|--------------------|---------------|-----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.1821 | 0.5078 | 0.7058 | 1.0200e-003 | 0.0299 | 9.9000e-003 | 0.0398 | 8.5100e-003 | 9.1000e-003 | 0.0176 | 0.0000 | 93.9534 | 93.9534 | 8.4000e-004 | 0.0000 | 93.9710 |
| Worker | 0.1897 | 0.0726 | 0.6770 | 9.1000e-004 | 0.0784 | 6.8000e-004 | 0.0790 | 0.0208 | 6.1000e-004 | 0.0215 | 0.0000 | 72.3671 | 72.3671 | 5.0200e-003 | 0.0000 | 72.4725 |
| Total | 0.3718 | 0.5805 | 1.3827 | 1.9300e-003 | 0.1082 | 0.0106 | 0.1188 | 0.0294 | 9.7100e-003 | 0.0391 | 0.0000 | 166.3204 | 166.3204 | 5.8600e-003 | 0.0000 | 166.4435 |

3.6 Paving - 2014

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |

3.6 Paving - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |
| Total | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |
| Paving | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 9.9000e-003 | 0.1019 | 0.0613 | 9.0000e-005 | | 6.3700e-003 | 6.3700e-003 | | 5.8700e-003 | 5.8700e-003 | 0.0000 | 8.3528 | 8.3528 | 2.4200e-003 | 0.0000 | 8.4037 |

3.6 Paving - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |
| Total | 3.8000e-003 | 1.4600e-003 | 0.0136 | 2.0000e-005 | 1.5700e-003 | 1.0000e-005 | 1.5900e-003 | 4.2000e-004 | 1.0000e-005 | 4.3000e-004 | 0.0000 | 1.4512 | 1.4512 | 1.0000e-004 | 0.0000 | 1.4533 |

3.7 Architectural Coating - 2014**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.2433 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.5000e-004 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |
| Total | 0.2438 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |

3.7 Architectural Coating - 2014**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.6000e-004 | 1.4000e-004 | 1.2700e-003 | 0.0000 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1355 | 0.1355 | 1.0000e-005 | 0.0000 | 0.1356 |
| Total | 3.6000e-004 | 1.4000e-004 | 1.2700e-003 | 0.0000 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1355 | 0.1355 | 1.0000e-005 | 0.0000 | 0.1356 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.2433 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 4.5000e-004 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |
| Total | 0.2438 | 2.7800e-003 | 1.9200e-003 | 0.0000 | | 2.5000e-004 | 2.5000e-004 | | 2.5000e-004 | 2.5000e-004 | 0.0000 | 0.2553 | 0.2553 | 4.0000e-005 | 0.0000 | 0.2561 |

3.7 Architectural Coating - 2014**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.6000e-004 | 1.4000e-004 | 1.2700e-003 | 0.0000 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1355 | 0.1355 | 1.0000e-005 | 0.0000 | 0.1356 |
| Total | 3.6000e-004 | 1.4000e-004 | 1.2700e-003 | 0.0000 | 1.5000e-004 | 0.0000 | 1.5000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | 0.0000 | 0.1355 | 0.1355 | 1.0000e-005 | 0.0000 | 0.1356 |

3.7 Architectural Coating - 2015**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9734 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.6300e-003 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |
| Total | 0.9750 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2400e-003 | 4.7000e-004 | 4.3100e-003 | 1.0000e-005 | 5.9000e-004 | 0.0000 | 5.9000e-004 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 0.5215 | 0.5215 | 3.0000e-005 | 0.0000 | 0.5221 |
| Total | 1.2400e-003 | 4.7000e-004 | 4.3100e-003 | 1.0000e-005 | 5.9000e-004 | 0.0000 | 5.9000e-004 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 0.5215 | 0.5215 | 3.0000e-005 | 0.0000 | 0.5221 |

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------|---------------|---------------|--------------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.9734 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 1.6300e-003 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |
| Total | 0.9750 | 0.0103 | 7.6100e-003 | 1.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.8000e-004 | 8.8000e-004 | 0.0000 | 1.0213 | 1.0213 | 1.3000e-004 | 0.0000 | 1.0241 |

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|--------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.2400e-003 | 4.7000e-004 | 4.3100e-003 | 1.0000e-005 | 5.9000e-004 | 0.0000 | 5.9000e-004 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 0.5215 | 0.5215 | 3.0000e-005 | 0.0000 | 0.5221 |
| Total | 1.2400e-003 | 4.7000e-004 | 4.3100e-003 | 1.0000e-005 | 5.9000e-004 | 0.0000 | 5.9000e-004 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 0.5215 | 0.5215 | 3.0000e-005 | 0.0000 | 0.5221 |

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|--------|--------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|--------|--------|----------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 1.9256 | 1.6885 | 7.9328 | 0.0126 | 0.8922 | 0.0185 | 0.9108 | 0.2392 | 0.0170 | 0.2562 | 0.0000 | 982.3812 | 982.3812 | 0.0525 | 0.0000 | 983.4845 |
| Unmitigated | 1.9256 | 1.6885 | 7.9328 | 0.0126 | 0.8922 | 0.0185 | 0.9108 | 0.2392 | 0.0170 | 0.2562 | 0.0000 | 982.3812 | 982.3812 | 0.0525 | 0.0000 | 983.4845 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|-------------------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| General Office Building | 1,156.05 | 248.85 | 102.90 | 2,418,481 | 2,418,481 |
| Total | 1,156.05 | 248.85 | 102.90 | 2,418,481 | 2,418,481 |

4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | | Trip Purpose % | | |
|-------------------------|------------|------------|-------------|------------|------------|-------------|----------------|----------|---------|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| General Office Building | 14.70 | 6.60 | 6.60 | 33.00 | 48.00 | 19.00 | 77 | 19 | 4 |

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.437503 | 0.048903 | 0.229570 | 0.168524 | 0.073101 | 0.008351 | 0.010919 | 0.009240 | 0.001556 | 0.001398 | 0.007311 | 0.000716 | 0.002906 |

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------|--------|--------|-------------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-------------|----------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 309.1225 | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 309.1225 | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |
| NaturalGas Mitigated | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |
| NaturalGas Unmitigated | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |

5.2 Energy by Land Use - NaturalGas

Unmitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Office Building | 1.4406e+006 | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |
| Total | | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |

5.2 Energy by Land Use - NaturalGas

Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|----------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|----------------|----------------|--------------------|--------------------|----------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| General Office Building | 1.4406e+006 | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |
| Total | | 7.7700e-003 | 0.0706 | 0.0593 | 4.2000e-004 | | 5.3700e-003 | 5.3700e-003 | | 5.3700e-003 | 5.3700e-003 | 0.0000 | 76.8759 | 76.8759 | 1.4700e-003 | 1.4100e-003 | 77.3438 |

5.3 Energy by Land Use - Electricity

Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use | kWh/yr | MT/yr | | | |
| General Office Building | 1.0626e+006 | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |
| Total | | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |

5.3 Energy by Land Use - Electricity

Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-----------------|-----------------|---------------|--------------------|-----------------|
| Land Use | kWh/yr | MT/yr | | | |
| General Office Building | 1.0626e+006 | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |
| Total | | 309.1225 | 0.0140 | 2.8900e-003 | 310.3126 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|-------------|-------------|--------|---------------|--------------|------------|----------------|---------------|-------------|----------|-------------|-------------|-------------|--------|-------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.5318 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |
| Unmitigated | 0.5318 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |

6.2 Area by SubCategory

Unmitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.1217 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.4101 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 1.0000e-004 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |
| Total | 0.5319 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |

Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|--------------------|--------------------|--------------------|---------------|--------------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.1217 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.4101 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 1.0000e-004 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |
| Total | 0.5319 | 1.0000e-005 | 9.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 1.8800e-003 | 1.8800e-003 | 1.0000e-005 | 0.0000 | 1.9900e-003 |

7.0 Water Detail

7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|--------|---------|
| Category | MT/yr | | | |
| Mitigated | 46.9430 | 0.6099 | 0.0147 | 64.3128 |
| Unmitigated | 46.9430 | 0.6100 | 0.0147 | 64.3223 |

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|--------------------|----------------|---------------|---------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Office Building | 18.662 / 11.438 | 46.9430 | 0.6100 | 0.0147 | 64.3223 |
| Total | | 46.9430 | 0.6100 | 0.0147 | 64.3223 |

7.2 Water by Land Use

Mitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|--------------------|----------------|---------------|---------------|----------------|
| Land Use | Mgal | MT/yr | | | |
| General Office Building | 18.662 / 11.438 | 46.9430 | 0.6099 | 0.0147 | 64.3128 |
| Total | | 46.9430 | 0.6099 | 0.0147 | 64.3128 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

| | Total CO2 | CH4 | N2O | CO2e |
|-------------|-----------|--------|--------|---------|
| | MT/yr | | | |
| Mitigated | 19.8221 | 1.1715 | 0.0000 | 44.4225 |
| Unmitigated | 19.8221 | 1.1715 | 0.0000 | 44.4225 |

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------------|----------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Office Building | 97.65 | 19.8221 | 1.1715 | 0.0000 | 44.4225 |
| Total | | 19.8221 | 1.1715 | 0.0000 | 44.4225 |

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|-------------------------|-------------------|----------------|---------------|---------------|----------------|
| Land Use | tons | MT/yr | | | |
| General Office Building | 97.65 | 19.8221 | 1.1715 | 0.0000 | 44.4225 |
| Total | | 19.8221 | 1.1715 | 0.0000 | 44.4225 |

9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|----------------|--------|-----------|-----------|-------------|-------------|-----------|
|----------------|--------|-----------|-----------|-------------|-------------|-----------|

10.0 Vegetation

APPENDIX C

SPECIAL AREA MANAGEMENT PLAN PROGRAMMATIC BIOLOGICAL OPINION



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
81420-2009-F-1118-1

OCT - 2 2012

Mr. Gregory S. Capra
Deputy Base Civil Engineer
9 CES/CC
6451 B Street
Beale AFB, California 95903-1708

Subject: Programmatic Biological Opinion on for Actions Associated with the Special Area Management Plan for Beale Air Force Base, Yuba County, California

Dear Mr. Capra:

This Programmatic Biological Opinion (PBO) is in response to your letter, received August 13, 2009, by the U.S. Fish and Wildlife Service (Service), requesting initiation of formal consultation for actions related to the implementation of the Special Area Management Plan (SAMP) at Beale Air Force Base (Beale AFB). The Service understands that some of the activities covered by the SAMP PBO will also require an Army Corps of Engineers (Corps) permit(s). Our analysis considered the effects of those activities, and this response also covers the Corps' permit actions. At issue are the effects of the activities described in the *SAMP Biological Assessment for Beale Air Force Base* (SAMP BA) on the federally listed as threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB), giant garter snake (*Thamnophis gigas*) (GGS), vernal pool fairy shrimp (*Branchinecta lynchi*) and the federally listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (referred to jointly with the vernal pool fairy shrimp as vernal pool crustaceans), and the conservancy fairy shrimp (*Branchinecta conservatio*). This response is provided pursuant to section 7 (a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*) (Act), and in accordance with the regulations governing interagency consultations (50 CFR §402). The Service has reviewed: 1) your August 13, 2009, request; 2) the *SAMP BA*; 3) the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, December 2005* (vernal pool recovery plan); 4) the *Changes & clarifications to the Beale AFB SAMP Programmatic Biological Assessment (August 2009)*, February 9, 2010; and 5) other information on file at the Sacramento Fish and Wildlife Office. A complete record for this consultation is on file at the Sacramento Fish and Wildlife Office.

The conservancy fairy shrimp is not currently known to occur within the action area of the PBO. At the time of the initiation of the PBO there are no verified occurrences of conservancy fairy shrimp on any of the Beale AFB properties. One occurrence of the species (CNDDB 2007) exists approximately two (2) miles north of the Lincoln Receiver Site in Placer County. Beale

AFB routinely monitors the status of vernal pool crustaceans on its properties and will continue to look for conservancy fairy shrimp during those surveys. If at any time conservancy fairy shrimp are detected by surveys, this new location information, coupled with the precarious status of the species, will require a thorough evaluation and reinitiation of the PBO.

Consultation History

| | |
|--------------------------|---|
| <i>November 13, 2007</i> | Beale AFB personnel met with Karen Leyse and Jana Affonso (Service) at the Sacramento Fish and Wildlife Office. The Service expressed interest in refining the available information regarding California red-legged frog (CRLF) and the potential of ground-disturbing projects to adversely affect vernal pool crustaceans and potentially occupied aquatic habitats. |
| <i>July 29, 2008</i> | Kirsten Christopherson, Jessie Golding, Lorena Solórzano-Vincent (URS), Rocky Montgomery (Service) and Jana Affonso met to present the draft PBA and the results of two biological studies to the Service at the Sacramento Fish and Wildlife Office. |
| <i>April 16, 2009</i> | Kirsten Christopherson sent an electronic mail to Rocky Montgomery requesting clarification of compensation ratios for direct and indirect effects to vernal pool crustaceans. |
| <i>August 12, 2009</i> | Kirsten Christopherson, Jessie Golding, Lorena Solórzano-Vincent, Diane Arreola (Consultant), Rocky Montgomery and Jana Affonso met to discuss the draft PBA at the Sacramento Fish and Wildlife Office. |
| <i>December 16, 2009</i> | Kirsten Christopherson, Diane Arreola, and Rocky Montgomery met to review the PBA and clarify points at Beale AFB. |
| <i>February 9, 2010</i> | Kirsten Christopherson sent an electronic mail with revisions to the SAMP BA attached to Rocky Montgomery. |
| <i>June 15, 2010</i> | Kirsten Christopherson sent an electronic mail with additional revisions to the SAMP BA attached to Rocky Montgomery. |
| <i>August 4, 2010</i> | Kirsten Christopherson, Diane Arreola, Rocky Montgomery, and Jana Affonso met to discuss the draft PBO at the Sacramento Fish and Wildlife Office. |
| <i>October 12, 2010</i> | Service received draft PBO from Beale AFB via electronic mail for review. |
| <i>October 14, 2010</i> | Service sent a revised draft PBO with comments to Beale AFB via electronic mail for review. |

December 7, 2010 Service received a draft PBO from Beale AFB via electronic mail with final revisions and comments for review.

December 14, 2010 Rocky Montgomery sent by electronic mail a draft working copy to Kirsten Christopherson for preliminary review.

January 4, 2011 Rocky Montgomery sent an electronic mail to Kirsten Christopherson requesting a reference (USFWS 1997a). Christopherson replied at 1:07 pm attaching the reference to an electronic mail

May 23, 2011 Rocky Montgomery attached a draft PBO at 2:32 pm that had been reviewed once to an electronic mail to Kirsten Christopherson requesting she review it. At 4:15 pm Christopherson replied that she and Diane had reviewed it.

October 11, 2011 Kirsten Christopherson sent an electronic mail to Rocky Montgomery requesting information on the status of the PBO. Montgomery replied on May, 12, 2011, that the PBO was in review.

May 10, 2012 Kirsten Christopherson and Rocky Montgomery met at Beale AFB to discuss ongoing revisions to the draft PBO.

June 25, 2012 Kirsten Christopherson sent an electronic mail to Rocky Montgomery with comments attached. Montgomery called Christopherson on the telephone at 11:00 am and discussed the comments.

BIOLOGICAL OPINION

Background

Beale AFB is within the Air Combat Command. Beale AFB is headquarters to the 9th Reconnaissance Wing (9 RW) that is responsible for providing national and worldwide command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. To accomplish this mission, 9 RW is equipped with a fleet of U-2 and RQ-4 (Global Hawk) reconnaissance aircraft and associated support equipment. The 9RW maintains a high state of readiness in its combat support and combat service support forces for potential deployment in response to contingencies around the world. The 9 RW also provides support for Beale AFB ranging from financial, personnel, housing, and maintenance, legal, recreational, and medical needs to fire protection, chaplain services, and Beale AFB security. Beale AFB also includes the Lincoln Receiver Site which is a geographically separate site from the main air base. The Lincoln Receiver Site is approximately 235 acres, and is west of the City of Lincoln in Placer County (Figure 1). The site contains a single building to support a large communications antenna.

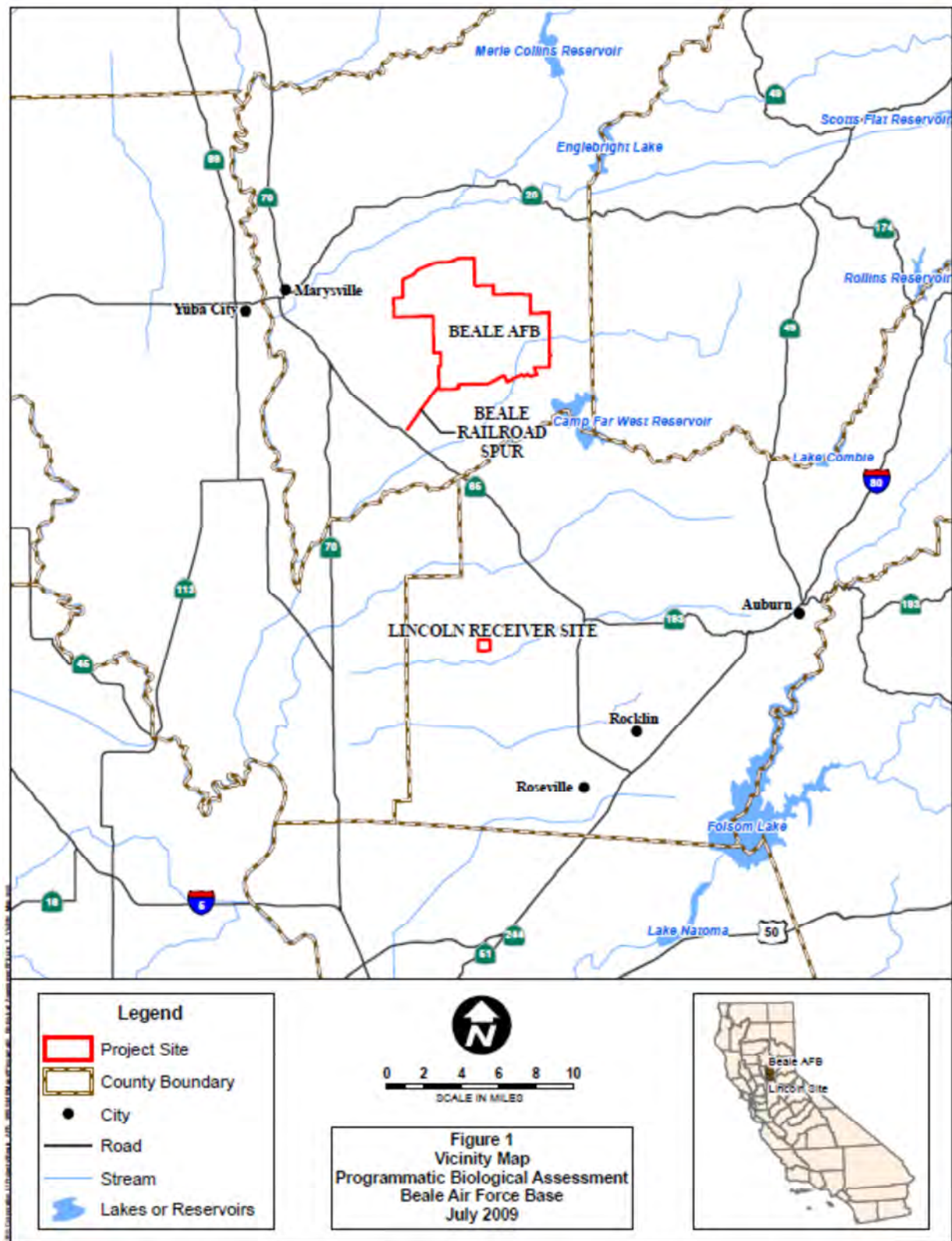


Figure 1 Beale AFB Properties

Beale AFB (i.e., Beale AFB, Yuba County, and the Lincoln Receiver, Placer County) occupies approximately 23,179 acres (ac) of land and contains many valuable natural resources.

Wetlands, vernal pools, streams, drainages, and other aquatic resources, collectively referred to as Waters of the U.S. (WoUS), that are regulated under Section 404 of the federal Clean Water Act are scattered throughout Beale AFB properties. These aquatic resources include about 43 miles of major streams and drainages and approximately 885 acres of wetlands and some of the largest contiguous tracts of vernal pools in the Sacramento Valley, which are known to support federally listed species.

In order to streamline regulatory processes, Beale AFB will be implementing a SAMP, which is currently being reviewed by the Corps. The SAMP will consist of a Corps Regional General Permit (RGP) for impacts to aquatic resources associated with routine activities at Beale AFB. The RGP will authorize activities if the associated aquatic resource impacts are consistent with a base-wide plan to conserve the most sensitive aquatic resources. Beale AFB requested a programmatic consultation in order to reduce the response time by the Service and streamline the future consultations.

This base-wide plan divides Beale AFB into three categories of sensitivity for federally listed species and aquatic resources:

- SAMP Low Integrity/Developed Areas
- SAMP Low Integrity/Undeveloped Areas
- SAMP High Integrity/Conservation Areas

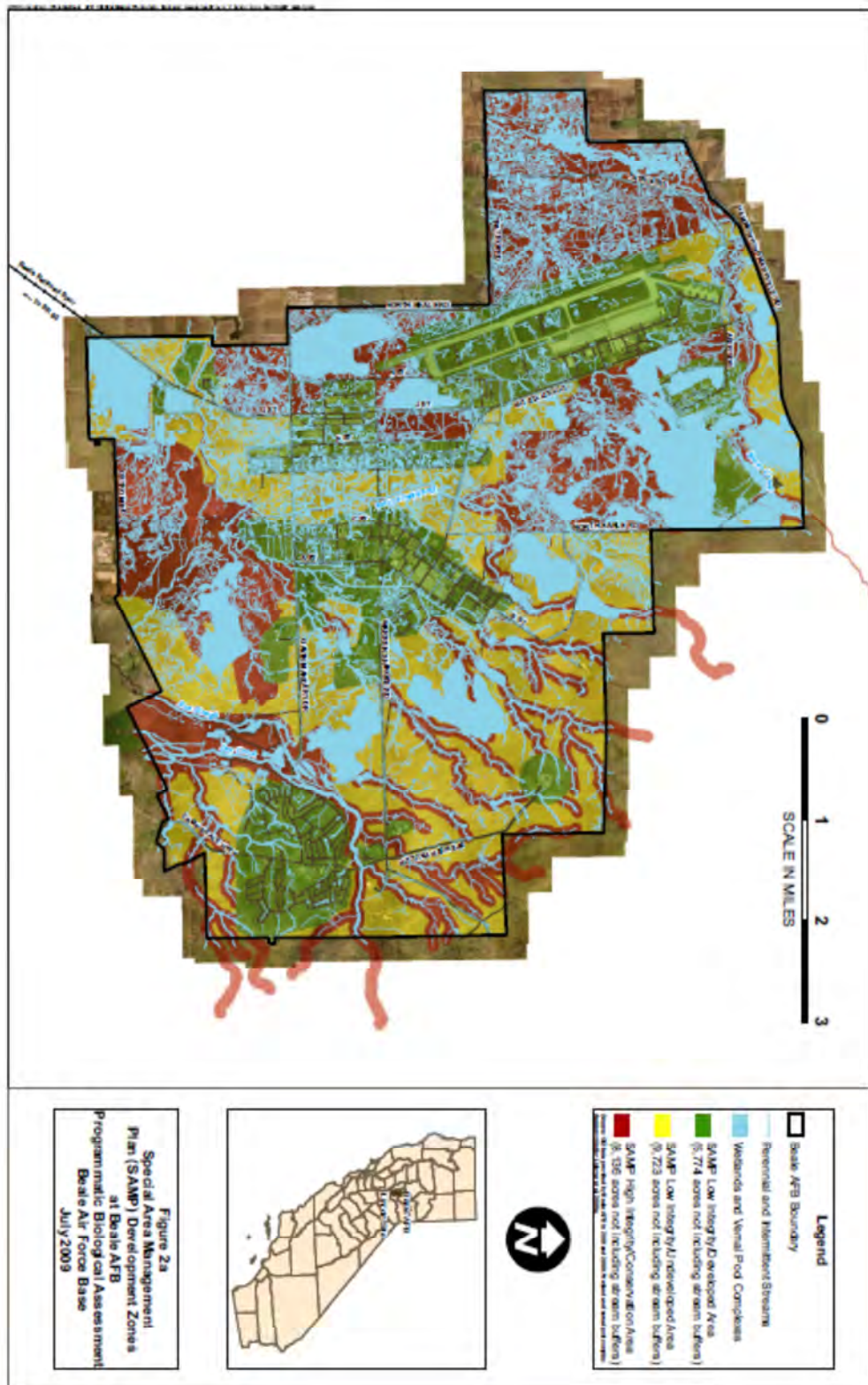
SAMP High Integrity/Conservation Areas are the most sensitive areas, and SAMP Low Integrity/Developed Areas are the least sensitive areas. These categories currently guide Beale AFB's management and development strategies and are used in this PBO to aid in the assessment of project impacts (Figures 2a and 2b).

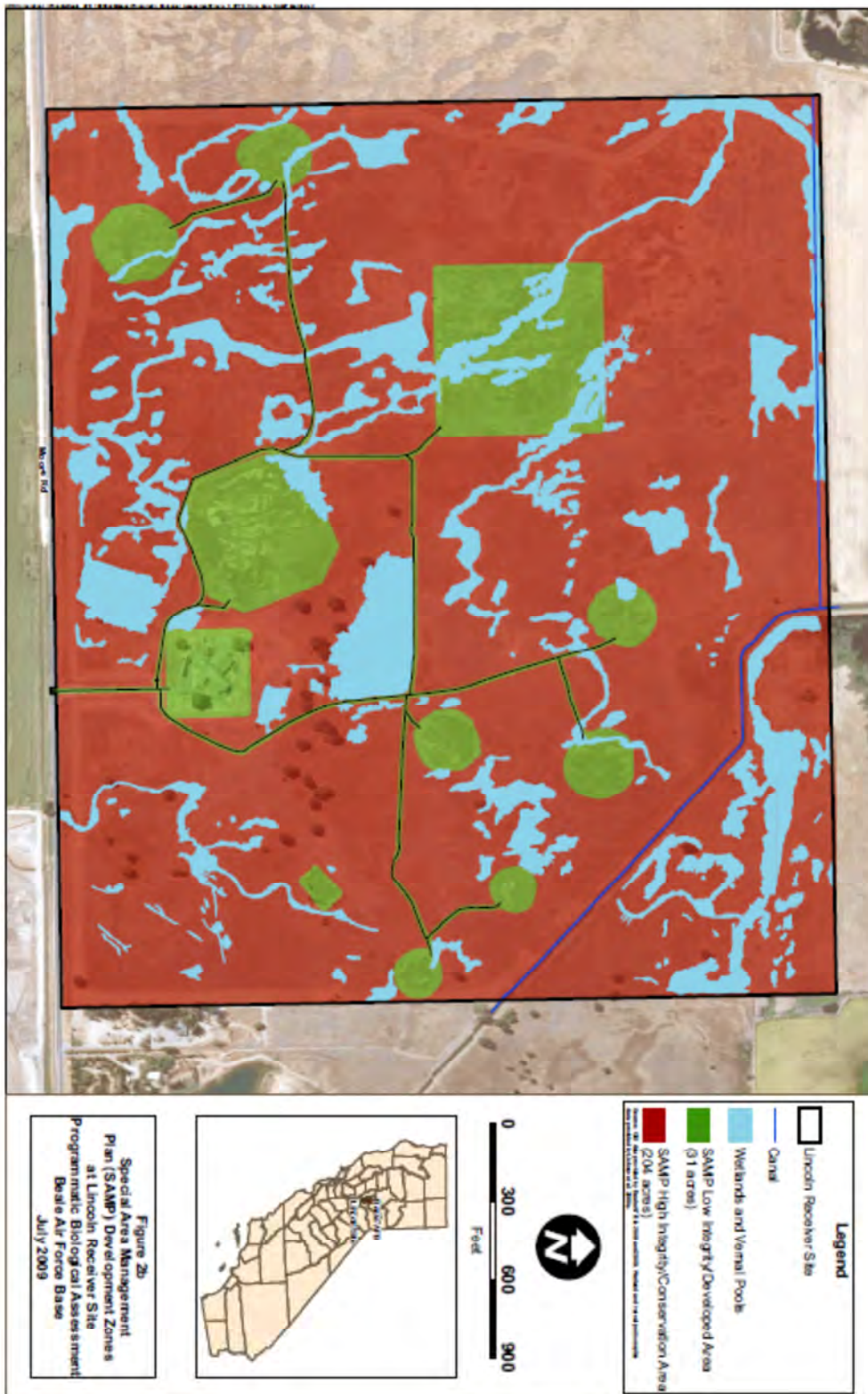
Low Integrity/Developed Areas

Low integrity/developed areas generally correspond with the General Plan (GP) Development Areas category. These areas include aquatic resources with generally low hydrologic, water quality, and habitat integrity; with less habitat value for threatened or endangered species; and low wildlife connectivity value. Beale AFB has previously and will continue to concentrate future development in these areas. Since these areas have already been developed or are adjacent to developed/disturbed areas, they are less likely to provide suitable habitat or higher quality habitat for any of the six federally listed species identified in this document.

Low Integrity/Undeveloped Areas

Low integrity/undeveloped areas are outside of the GP Development Area but are not considered to be high priority sites for future conservation or preservation. These areas include aquatic resources with generally low hydrologic, water quality and habitat integrity; with less habitat





value for threatened or endangered species; and low wildlife connectivity value. These areas may provide suitable habitat for any of the six federally listed species identified in this document. Development is not expected to occur in these areas; however, infrastructure will traverse these areas and mission-critical activities will occur, as required. Development is allowed in the low integrity/undeveloped areas; however, Beale AFB plans development to proceed in an orderly manner according to the GP.

High Integrity/Conservation Areas

High integrity/conservation areas consist of aquatic resource features and associated watersheds with higher habitat integrity that provide habitat for threatened or endangered species, aquatic habitats with wildlife connectivity value or areas that have been previously designated for conservation by Beale AFB. These areas are more likely to provide higher quality habitat suitable to support any of the six federally listed species identified in this document, especially habitat for vernal pool crustaceans and GGS. Beale AFB identified high integrity/conservation areas using information from a Light Detection and Ranging remote sensing mapping of vernal pools, floristic vernal pool surveys, a riparian ecosystem study, vernal pool crustacean studies, a GGS habitat assessment, and the Beale AFB Draft Habitat Conservation and Management Plan prepared by Jones & Stokes in 2002 (Jones & Stokes 2002). Development in these areas will typically be for maintenance of existing structures and utilities.

Beale AFB proposes to implement routine construction activities that are identified in the GP and authorized by the Corps under the SAMP process. The proposed construction activities will consist of implementing routine maintenance and construction at Beale AFB using the SAMP process. These construction activities fall under the following categories:

- Bridges
- Communication towers
- Culverts and drainage ditches
- Facilities
- Fences and gates
- Utilities, and
- Other activities

The construction activities described are examples of the types of activities that will occur on Beale AFB and not final project descriptions.

The intention of the PBO is to establish a predictable process for section 7 consultation that will streamline the effects analysis and establish guidelines for proposed compensation. Both Beale AFB and the Service expect that the PBO will shorten the timeline for future routine consultations. Beale AFB will use the framework established by the SAMP to evaluate routine activities as described in this PBO. The SAMP designates the same three land use categories for areas that will be potentially affected by routine activities: low integrity/developed areas, low integrity/undeveloped areas, and high integrity/conservation areas. A combination of these SAMP land use categories, federally listed species habitat evaluations, and adherence to the avoidance, minimization and general conditions proposed in this document will be used to determine possible effect levels to federally listed species. Within this framework there will be three possible effect levels on federally listed species:

- The first is the level of “**no effect**” on any federally listed species discussed in this document. This level requires no consultation or further reference to this document. It applies to all situations where none of the federally-listed species with the potential to occur on Beale AFB are likely to be present in the action area or the nature of the activity itself will have no effect on the listed species.
- The second level is “**may affect, not likely to adversely affect**” federally-listed species. This level refers to those activities that are not likely to adversely affect (NLAA) the federally-listed species with the potential to occur on Beale AFB. This level will require informal consultation with the Service including a project description. If the Service concurs with the determination of NLAA there will be no further consultation. If the Service does not concur with the NLAA determination then the Service will notify Beale AFB in writing or by electronic mail, and further consultation will be required. This level of effect will apply to projects where the avoidance and minimization measures described in this PBO will suffice to ensure that the proposed activities are not likely to adversely affect a federally-listed species.
- The third level is “**may affect, likely to adversely affect**” federally-listed species. This level refers to those activities that are likely to adversely affect the federally-listed species with the potential to occur at Beale AFB. This level requires formal consultation with the Service and the issuance of a Biological Opinion (BO)/Incidental Take Statement. It applies to all activities that are likely to directly or indirectly adversely affect federally-listed species that are present in the action area.

Based on the three possible levels of effect and the SAMP permitting categories, the Service programmatic consultation will be tiered so that there are specific requirements for each of the three possible levels of effect.

The following are general thresholds that will be used to initiate an effect to specific species. These should be considered guidelines and each proposed project should be analyzed for potential effects individually, but unless there is a unique circumstance, these thresholds should provide sufficient parameters for making a determination.

The threshold levels for the *may affect* standard are as follows:

- Within 250 feet of (or where hydrologically connected to) a vernal pool or seasonal wetland which exhibits characteristics and inundation regimes that may support vernal pool species.
- Within 100 feet of an elderberry shrub.
- Within 200 feet of aquatic habitat for GGS.

Description of the Proposed Actions to be covered under the PBO

Bridges

New Construction:

New bridges will be constructed throughout Beale AFB as needed. Materials such as rock, concrete, and sand will be used to upgrade the physical structure so that the bridges can support vehicles. Bridge construction may also include removal/excavation of sediments and bottom material. Bridge construction will typically involve the use of equipment such as excavators and dump trucks. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Maintenance and Upgrades:

Bridges throughout Beale AFB will be repaired, maintained, or upgraded to existing safety standards as needed. Routine repair activities include the repair of footings to prevent future erosion, the installation of railings and support beams for structural support, the sealing of cracks, and the filling of potholes in roadways. Materials of rock, concrete, and sand will be used to upgrade the physical structure so that the bridges can support vehicles. Bridge repairs may also include removal/excavation of sediments and bottom material and the use of an excavator and a dump truck. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Communication Towers

New Construction / Installation:

New communication towers will be installed in support of upgrading or expanding the communication mission at Beale AFB. The towers generally are installed in open, undisturbed areas of Beale AFB so there is no interference during operation. The activity will involve clearing the vegetative surface out to 10 feet, removal of grass and leveling the ground. Flightline communication towers are installed on concrete pads that are between 3 and 10 feet in diameter. Specialized towers (up to 40 feet tall), such as those at the Lincoln Communications site, do not have concrete pads but have ground clearance of up to 30 feet in diameter. Towers

such as these require permanent vegetative removal and are usually constructed in undeveloped grassland areas. Construction will require the use of heavy equipment scrapers. If the project site is within 250 feet of a wetland, the clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance.

Maintenance and Upgrades:

Communication towers throughout Beale AFB will be upgraded or maintained in support of improving or expanding the communication mission at Beale AFB. Upgrading and maintenance will be performed on existing communication towers, the replacing of existing towers will fall under the above, *New Construction/Installation*.

Culverts and Drainage Ditches

New Culvert Construction:

New culverts will be installed at drainage crossings and high surface water flow areas throughout Beale AFB. Most of this work will occur in the main Beale AFB area and some will occur in the undeveloped areas. This will ensure surface water is adequately captured and contained and reduces flooding on Beale AFB. Soil, sediments, and vegetation will be excavated to install culverts. This work may require an excavator, back hoe, and dump truck. The work may also involve providing concrete support structures on road culverts. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Culvert Maintenance and Upgrades:

Existing culverts will be upgraded or repaired at drainage crossings and areas of high surface water flow throughout Beale AFB. Most of this work will occur in the main Beale AFB area as well as some undeveloped, and conservation areas. This will ensure surface water is adequately captured and contained and reduces flooding on Beale AFB. Soil, sediments, road material, and vegetation that are blocking drainages will be physically removed. The work will replace existing culverts with larger ones and may involve minimal widening or deepening of drainage. This work may require an excavator, back hoe, and dump truck. In addition, concrete support structures may also be installed into the channel. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Roadside Ditch Maintenance:

Roadside ditches will be cleaned of debris, vegetation and siltation during the dry season (June through October) to ensure water flows are not obstructed during the winter rains. If drainages back up, there are many areas on Beale AFB that could have severe flooding. Most of these roadside ditches are within 15 feet of an existing paved road throughout Beale AFB and transport surface water to one of the 3 major drainages on Beale AFB. Vegetation, debris, and sediments down to 6 inches will be removed for maintenance purposes. All ditch maintenance will be conducted from an existing paved road surface whenever possible. This work may require an

excavator and dump truck. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Facilities

New Construction:

New facilities will be constructed throughout Beale AFB. Development of new industrial, commercial, and residential facilities may include the following: airfields, munitions storage facilities, communication structures, parking lots, storage yards, and detention basins. Most of the new facility construction will occur in developed areas of the Main Base, the Flightline or Housing areas of Beale AFB. New construction is generally limited to designated development envelopes. New construction may occasionally involve minimal disturbance to undeveloped land. If developed these activities will involve ground disturbance down to 6 feet and may involve the use of heavy equipment including excavators, bulldozers, dump trucks, pavers, and scrapers. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Maintenance and Upgrades:

Facilities will be repaired, upgraded, and maintained throughout Beale AFB. Most work will be located in the developed areas of the Main Base, the Flightline and Housing sections of Beale AFB. Facility repair or upgrades will generally occur in areas that are previously developed. Activities may include maintenance and upgrades to existing facilities, munitions storage structures, parking lots, or communications structures. These activities may involve the use of heavy equipment including excavators, bulldozers, dump trucks, pavers, and scrapers. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Fences and Gates

New Construction / Installation:

To upgrade security at Beale AFB, new upgraded fencing may be installed around the perimeter of Beale AFB and at the 4 public access gates. In addition, installation of fences could occur in other locations on Beale AFB where the mission requires the work area to be secure. This is necessary to provide required Base perimeter and interior security. Installation of fencing will require a 15-foot area to be mowed clear of all vegetation and leveled. It may require the use of equipment such as a tractor and truck with an auger that will access the area in the 15-foot work zone. A 3-foot deep hole will be dug to install the support poles that are 1 foot in diameter. Support poles will be installed every 10 feet. If necessary to avoid wetlands, the poles can be extended out to 15 feet. Poles will be installed and concreted in. The completed fence will be a 7-to 8-foot-high chain-link fence with 3 strands of barbed wire on outriggers. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Maintenance and Upgrades:

To upgrade security at Beale AFB, existing fencing may be upgraded around the perimeter of Beale AFB, and at the 4 public access gates. Existing fences will be maintained. In addition, upgrading and maintenance of fences can occur in other locations on Beale AFB where the mission requires the work area to be secure. Installation of fencing is addressed above under *New Construction/Installation*. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Linear Transportation*Roadwork: New Construction:*

New asphalt or gravel roads, including road shoulders, may be constructed throughout Beale AFB. Most roadwork will take place in the developed areas of Beale AFB. New paved roads will generally be constructed in the Main Base area on Beale AFB. New gravel roads will generally be constructed in the undeveloped areas of Beale AFB. Road paving and repair will generally disturb up to 10 feet off of the paved road surface. This will allow for equipment to access the area. The existing surface will be leveled and then base rock will be laid down up to 6 inches and then up to 6 inches of asphalt or concrete. For gravel roads, the surface will be leveled and 2 to 4 inches of gravel will be laid down. The depth of disturbance will be no more than 12 inches for paved roads and 6 inches for gravel roads. The extent of disturbance from the paved road surface is 10 feet on either side. Heavy equipment used may include scrapers, loaders, grinders, pavers, or rollers. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Roadwork: Maintenance and Upgrades:

Existing asphalt and gravel roads, including road shoulders, will be repaved and repaired throughout Beale AFB. Most roadwork repair/upgrades will take place in the developed areas of Beale AFB. Minimal road maintenance may take place in the undeveloped areas of Beale AFB where both small gravel and paved roads exist. Road paving and repair will generally disturb up to 10 feet off of the paved road surface. This will allow for equipment to access the area. The existing surface will be leveled and then base rock will be laid down up to 6 inches and then up to 6 inches of asphalt or concrete. For gravel roads, the surface will be leveled and 2 to 4 inches of gravel will be laid down. The depth of disturbance will be no more than 12 inches for paved roads and 6 inches for gravel roads. The extent of disturbance from the paved road surface is 10 feet on either side. Heavy equipment used may include scrapers, loaders, grinders, pavers, or rollers. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Railroad Maintenance:

The current railway system will be rehabilitated and maintained at Beale AFB. The railway is part of the Turbine Fuel, Aviation, Thermally Stable fuel delivery system that transports fuel to

Beale AFB. The railway is considered a spur line and is about 6 miles long. It extends from near State Route 65 to the bulk storage facility just north of Gavin Mandery Road. The work will include the upgrade of the railbed and two bridges. This will be done by adding support ties and rail joints to the track. Bridge repair will involve physical structural upgrades to areas where the bridges are deteriorating. Both activities may require the use of heavy equipment including excavators and dump trucks. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Utilities

Aboveground Utility Lines: New Construction:

Existing utilities will be upgraded base-wide to support new workload, missions or an increased capacity of existing workloads. Most of the utilities will be located in the developed areas of Beale AFB. Occasionally, there will be utilities installed in the undeveloped areas when expanding existing lines is needed. Utility poles on Beale AFB are generally placed 180 to 250 feet apart. This generally allows for wetlands to be avoided when installing or replacing poles. Utilities will generally be installed within 25 feet of existing roads; however some traverse open grasslands. Pole installation will involve disturbance of a 25-foot diameter area. This will allow for heavy equipment to conduct the installation by digging down 10 feet to install the pole. A large drill rig will auger down to 10 feet and install the pole. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Aboveground Utility Lines: Maintenance and Upgrades:

Utility poles will be replaced throughout Beale AFB. Utility poles on Beale AFB are generally placed 180-250 feet apart. This generally allows for wetlands to be avoided when installing or replacing poles. Many of the utility poles are adjacent to roads (within 25 feet), however some traverse open grasslands. Pole replacement will involve disturbance of a 25-foot diameter area. This will allow for heavy equipment, a large drill rig, to auger down to 10 feet and allow for installation of the pole. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Underground Utility Lines: New Construction:

New utilities including in-ground communication cables, pipes for below ground water, fuel, and sewer lines will be installed base-wide to support new workload, missions or an increased capacity of existing workloads. Most of the utilities will be located in the developed areas of Beale AFB. Occasionally, there will be utilities installed in the undeveloped areas when expanding existing lines is needed. Utilities will generally be installed within 25 feet of existing roads. Trenching for cable or pipe placement will be 2 to 4 inches in width and 3 to 4 feet deep. When installation of utilities involves boring underground, a 4-foot deep boring will be dug, plus 3-by 3-foot pit to allow access for equipment. A trencher or backhoe will be used for these tasks. Soil will be backfilled into all trenches. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Underground Utility Lines: Maintenance and Upgrades:

Utilities will generally be installed within 25 feet of existing roads; however, some traverse open grasslands. Trenching for cable or pipe placement will be 2 to 4 inches in width and 3 to 4 feet deep. When installation of utilities involves boring underground, a 4-foot deep boring will be dug, plus 3-by 3-foot pit to allow access for equipment. A trencher or backhoe will be used for these tasks. Soil will be backfilled into all trenches. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Other Activities*Bank Stabilization:*

Erosion along all drainages on Beale AFB, especially larger channels (Reeds, Hutchinson, and Dry Creeks) along natural stream channels or roads that cross drainages, will be repaired. Many of these areas are severely eroded and sloughing off soil, vegetation, and debris into the channel/drainage. Support material such as riprap, waddles, and vegetative material will be installed. Stabilization will help restore the stream banks and protect areas of heavy flow in an effort to minimize further erosion. These activities will require the use of a backhoe and dump truck. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Military Training:

Ground training activities will be conducted base-wide to educate the active military in construction of temporary base facilities, wartime training, rapid runway repair, and heavy equipment operation. These activities are allowed in designated training areas on Beale AFB.

These specified areas are undeveloped, highly disturbed, and located in the center of Beale AFB where there is access to utilities. Activities involve setting up temporary facilities for military to live and train. Heavy equipment training will involve driving on undeveloped areas and digging trenches. Construction training will involve building facilities/runways, roads and utility installation. These activities may involve the use of backhoes, scrapers, bulldozers, trenchers and dump trucks. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Vegetation Management:

Overgrown trees, shrubs, and low-lying vegetation will be removed from drainages base-wide to control overgrown and exotic vegetation. Herbicides will be applied to control weeds in roadside ditches and other areas on Beale AFB that require no vegetation.

Firebreaks:

The firebreaks are an essential land management tool to protect Beale AFB assets from wildfires that may come on to Beale AFB as well as to protect adjacent property owners from wildfires originating on Beale AFB. Firebreaks are cut by using disking equipment that cuts and turns up the soil eliminating all live vegetation and removing any fuel that could potentially burn. Firebreaks on Beale AFB are generally cut along the base perimeter and in some high risk interior areas of the base. Firebreaks will not be cut through vernal pools, and a 25 foot “no disk” zone will be maintained as a buffer around all vernal pools. Disking will not exceed 12 inches in depth. All appropriate vernal pool Best Management Practices (BMPs) shall be implemented when maintaining existing firebreaks. All firebreaks (new or existing) shall be constructed or maintained during the dry season (June-October).

New firebreaks - Thirty foot firebreaks will be cut around Beale AFB perimeter and 16-foot firebreaks will be cut on interior portions of Beale AFB that have high risk fire areas or in preparation for prescribed burns. In no disk zones other non-ground disturbing equipment shall be utilized such as mowers and other hand equipment. Mowing after seed dispersal, during the dry season, is not typically considered an impact. New firebreaks within 250 feet of a vernal pool will require submission under the PBO.

Existing firebreaks – Much of Beale AFB perimeter has existing firebreaks (16-30ft wide) that have been in place for many years. Many interior firebreaks also exist where facilities or resources are situated in explosive safety areas or high risk fire areas. These existing firebreaks are re-disked annually in order to maintain a no vegetation zone around areas requiring fire protection. When re-disking occurs within the existing footprint of the established firebreaks that meet all above criteria, Beale AFB will consider that action a no effect on listed species and will not notify the Service. No effect determinations are not covered under the incidental take provisions of this PBO and actions associated with them may be subject to section 9 prohibitions of the Act.

Prescribed burns - The overall plan for Beale AFB prescribed burns consists of burning up to 2,000 acres per year. This consists of burning selected grassland at least once every 7 years, and flightline burns as needed. In addition to the grazing land burns, the area immediately west of the runway must be burned annually. These flightline burns are intended to control the highly-invasive yellow star thistle, which will discourage bird populations that pose Bird Air Strike Hazard (BASH) threats. Studies indicated that many of Beale AFB’s BASH incidents involved small bird species attracted to the star thistle and its associated insects (Beale AFB 2005b). The area within 100 feet of the runway will be mowed, and not burned, to maintain the control tower’s view of aircraft on the runway.

Two types of prescribed fires are recognized at Beale AFB: 1) those ignited by qualified personnel in accordance with an approved site-specific burn plan, and 2) wildfires managed under prescribed conditions as addressed in an approved Wildland Fire Management Plan. A site-specific burn plan will be developed for each prescribed burn conducted at Beale AFB. The installation of a Wildland Fire Management Plan will identify the required components for site-

specific burn plans. At a minimum, burn plans will include the following objectives: 1) reduce the abundance of undesirable plant species base-wide; 2) promote desirable and native forage species in rangelands; 3) improve range conditions for cattle; and 4) reduce the fuel load for wildfires. All burning and burn preparations will take place during the dry season (June through October). In abnormal rain years, burning can be conducted outside of this time period in two cases: 1) If little to no rain has occurred in November and wetland vegetation in the burn areas has not germinated, burning may be accomplished at the discretion of the Natural Resource Manager, and 2) If rain has subsided early enough in the spring that all wetland vegetation in the burn areas has senesced, burning may be accomplished at the discretion of the Natural Resource Manager. In addition, other environmental, safety, personnel, equipment, authorization, and notification will be taken into consideration for any prescribed burn activities at Beale AFB.

Grazing for Vegetation Management:

Beale AFB will use livestock (cattle, sheep and goats) on its properties throughout the year as needed for control of noxious weeds, reduction of fuel load for wildfires, and reduction of thatch accumulation in vernal pools to improve habitat for federally listed species. Goat grazing has proven effective in reducing invasive plant density and promoting native species (Thomsen et al 1993). Reducing thatch and promoting native plant species will improve the functioning of vernal pools at the site and is expected to promote special status species populations in the pools. Goats will be used to install firebreaks in lieu of disking and mowing in areas with sensitive natural resources, such as vernal pools and streams.

Fire Suppression

Emergency fire department actions will be conducted base-wide and allow personnel to respond to emergency fires without delay. This will allow quick containment of any unexpected threat to human health, safety or the environment. These actions may require the use of excavators, bulldozers, dump trucks, and fire trucks. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis. Because of the nature of these actions they will most likely be consulted on an after the fact basis. Any emergency action that occurred and potentially impacted listed species shall require verbal or email notification to the Service within 24 hours; a follow-on request to the Service to append the incident to the PBO will be submitted when all information is available.

Oil Spill, Hazardous/Toxic Waste, and Munitions Site Cleanup

Containment, stabilization, or removal of hazardous waste or unexploded ordnance will be conducted base-wide to cleanup former military hazardous waste and munitions disposal sites and respond to emergency situations (hazardous materials, aircraft, and vehicle accidents, sewer breaks) without delay. This will allow quick cleanup or containment of any unexpected threat to human health, safety or the environment. Cleanup actions may involve significant soil removal or fill, collecting soil/water samples at specific locations, drilling, installing wells, or constructing cleanup structures/facilities. These activities may require the use of excavators, bulldozers, dump trucks, or drill rigs.

These activities will be performed and ordered under the regulatory authority of the Comprehensive Environmental Response, Compensation and Liability Act and the Resource Conservation and Recovery Act. Investigation and clean-up projects will be implemented by the Air Force under the Environmental Restoration Program (ERP) or the Military Munitions Response Program (MMRP), which both have separate processes for regulatory coordination on evaluating and minimizing impacts to environmental resources. Activity zones including staging areas, egress, and ingress routes will be designated on a project-specific basis and will consider avoidance of hydrological impacts to wetlands. When possible, all ground disturbing activities will remain 250 feet from wetlands to avoid impacts. When it is not possible to stay 250 feet from sensitive resources, Beale AFB will select the appropriate level of consultation under the PBO.

Any emergency action that occurred and potentially impacted listed species shall require verbal or email notification to the Service within 24 hours; a follow-on request to the Service to append the incident to the PBO will be submitted when all information is available.

Demolition

Beale AFB will remove degraded, unsafe, and/or unnecessary facilities. Removal of the facilities is necessary to minimize safety concerns, reduce maintenance costs, and/or provide land for new construction. Demolition activities would mostly occur in the developed areas of the Main Base, the Flightline or Housing areas of Beale AFB. These activities may involve ground disturbance down to 3 feet and could include removal of existing facility structures, associated equipment, facility parking lots, and fencing. Activities may require use of heavy equipment including excavators, bulldozers and dump trucks. Construction zones including staging areas, egress, and ingress routes will be designated on a project basis.

Impacts from restoration activities

Restoration activities will include the continued restoration of former vernal pool habitat to be available as compensatory mitigation to offset impacts by actions on Beale AFB. Restoration activities will also include riparian restoration actions as described in the Beale AFB *Integrated Natural Resource Management Plan* (INRMP).

Aquatic Habitat Restoration, Establishment, Enhancement, and Monitoring (vernal pool/wetland/riparian):

To restore the vernal pool ecosystem in the vernal pool restoration areas on Beale AFB, an ecological restoration approach will be applied, as described in Appendix E of the SAMP BA (Habitat Restoration, Management, and Monitoring Program, August 09). The ecological restoration approach involves landscape-level restoration of the complete vernal pool ecosystem over large areas, including mound-intermound topography, vernal pools, connecting swales, and other classes of seasonal wetlands.

A primary component for achieving this landscape-level restoration is to restore the general pattern of mound-intermound topography that occurred in the vernal pool restoration area before historic land leveling.

Construction Impacts from Vernal Pool Restoration:

In the vernal pool restoration areas, it is anticipated that existing vernal pool crustacean habitat may be impacted through fill or excavation.

Types of Vernal Pool Impacts Expected During Restoration Construction Activities:

Temporary Impacts – All restoration activities will result in temporary impacts to vernal pool crustacean habitat. These impacts will be caused from temporary equipment crossings, inoculum collection and recontouring the land adjacent to and within existing vernal pools. These activities will involve surface and subsurface disturbance that will not break through the hardpan layer that is typically 2-4 feet subsurface.

- All restoration activities will occur only during the dry season, limiting vernal pool plant and animal species impacts to no more than one wet season.
- All restoration work will be improving the overall function of the conservation areas by creating an overall net gain of vernal pools.
- Restoration activities such as recontouring of restored pools and establishing connectivity will improve the hydrological functioning of vernal pools within and adjacent to the restoration area.
- Restoration activities will increase the available habitat for vernal pool crustaceans base-wide.
- Once restoration activities are completed, the land will be designated as a conservation area and will have development restrictions in place through the General Plan.

Restoration of habitat will, ultimately, result in a net benefit for species that inhabit the restored habitat; therefore, compensation for the impacts of restoration activities will not typically be proposed.

- *Indirect Impacts*– Indirect impacts will generally occur to pools near, or hydrologically connected to, the restoration area. Activities that may result in indirect impacts include recontouring adjacent pools and uplands to provide hydrologic connections to restored pools.
- *Direct Impacts* – Direct impacts will generally occur from restoration activities occurring within an existing vernal pool. These activities include inoculum collection, recontouring of the restored pools, and establishing connectivity between pools to improve the

hydrological function. The work will be conducted during the dry season, so it is anticipated that impacts to the species will be limited to the cysts of the vernal pool crustaceans.

The restoration activities causing the direct and indirect impacts will be temporary in nature and will improve the overall vernal pool crustacean habitat. Restoration will protect large tracts of land on Beale AFB and is intended to contribute to the recovery of the species. Therefore, compensation is not anticipated for these activities; however, if the Service deems that special circumstances exist, additional preservation of vernal pools in a Beale AFB Conservation Area may be considered.

SAMP and PBO Limitations:

The Beale AFB Environmental Office will be responsible for administering the base-wide permit and will provide annual reporting to the Corps on impacts to WoUS and associated compensation. A copy will be provided to the Service. The Beale AFB Environmental Office will provide pre-notification to the Corps for any single project impacting more than 1.0 acre. The base-wide permit will be in place for a period of five (5) years. Beale AFB has proposed to the Corps that the overall WoUS impact threshold for the permit will not exceed 15 acres of wetlands and 8 acres of streams/ drainages in a 5-year period. Of the 23 acres of potential impacted wetlands, streams and drainages, no more than 8.0 acres of aquatic habitat of Federally-listed species (i.e., 7.5 acres of vernal pool crustacean; 0.5 acre of giant garter snake) will be impacted during that time. This upper threshold will allow as much as ten percent of the total WoUS present in the developed area to be impacted during the 5-year period. This will allow Beale AFB to efficiently complete most routine projects that could potentially impact WoUS in the future to support the Beale AFB mission.

The PBO shall be in effect concurrent with the base-wide permit for a period of five (5) years. If the base-wide permit is extended by the Corps, then Beale AFB may request an extension of the PBO at the end of the five-year term. If changes are needed by either party (e.g., additional incidental take or inclusion of additional activities), Beale AFB will reinitiate consultation at least 6 months prior to the expiration of the PBO in order to ensure adequate time for the Service to analyze the potential effects. If both parties concur that no changes are needed, an amendment to extend the expiration date of the PBO may be granted for up to 5 years beyond the most current expiration date.

Conservation Measures

General Avoidance and Minimization Measures:

The following general measures are proposed to avoid and/or minimize temporary disturbance to federally listed species and degradation of the habitats utilized by these species on Beale AFB:

Biological Monitor

- A Service-approved biologist will conduct preconstruction surveys of all ground disturbance areas within sensitive habitats to determine if any federally listed species may be present prior to the start of construction. These surveys will be conducted two weeks prior to the start of construction activities in any sensitive habitat. If any federally-listed species are found during the preconstruction surveys, the Service-approved biologist will contact the Service to determine how to proceed. At least 15 days prior to the onset of survey activities, Beale AFB will submit the name(s) and credentials of biologists who will conduct these preconstruction surveys. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.
- A Service-approved biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with the avoidance and minimization measures required to protect federally listed species and their habitats. If federally listed species are found that are likely to be affected by work activities, the Service-approved biologist will have the authority to stop any aspect of the project that could result in unauthorized take of a federally listed species. If the biological monitor exercises this authority, he/she must notify the Service by telephone and letter within one working day.
- Environmental awareness training will be provided for all construction personnel working on Beale AFB. Training will be provided at the start of the construction project and within 15 days of any new worker's arrival on the project. The program will consist of a briefing on environmental issues relative to the proposed project. Training will be conducted by a Service-approved biologist. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each federally listed species that may occur in the project area. The presentation will also include a discussion of the legal protection for endangered species under the Act, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies.
- A Service-approved biological monitor will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible (see Beale AFB *Integrated Natural Resource Management Plan*). When practicable, invasive exotic plants identified in the project area will be removed.

Service Notification

- Beale AFB will track the area of impact resulting from projects covered under the SAMP PBO and will submit an annual report to the Service summarizing these acreages on a

project by project basis (Beale AFB personal communication 2008).

Buffers and Time Restrictions

- All wetlands/drainages/vernal pools, if present, will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 250 feet of a wetland or where hydrological continuity exists between the construction activities and the wetland. Construction boundaries within the buffer will be designated with fencing to ensure no equipment and/or construction workers access those protected areas.
- All areas of ground disturbance or exposed soil will be reseeded with a native “weed free” seed mix approved by the Beale AFB environmental office.
- Mowing in and around vernal pool crustacean habitat after seed dispersal and during the dry season is considered a NLAA action.
- No work will be conducted within 250 feet of vernal pools and streams between November 1st and May 1st, unless specifically approved by the Beale AFB environmental office.
- Prior to initiation of construction activities, sensitive areas, such as vernal pools, wetlands, riparian areas, and potential habitat for federally listed species (i.e., vernal pool crustaceans, VELB, GGS), will be staked and flagged as exclusion zones where construction activities cannot take place. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur. The flagging and fencing will be clearly marked as an *environmentally sensitive area* (ESA). The contractor will remove all fencing, stakes and flagging within 60 days of construction completion.

Construction Worker Implementations

- Off-road travel outside of the demarcated construction boundaries will be prohibited (Beale AFB 2008d).
- Beale AFB (or the contractor to Beale AFB) will provide all materials to stake and flag boundaries of the work area. Beale AFB will coordinate with the biological monitor to stake and flag the boundaries of all work and staging areas in portions that have the potential to support vernal pool crustaceans, VELB, GGS or their habitat. The contractor will remove all fencing, stakes and flagging within 60 days of construction completion. Orange construction barrier fencing will designate exclusion zones where construction activities cannot occur.
- Any worker that inadvertently kills or injures a federally listed species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will inform Environmental Section (9 CES/CEAN). The 9

CES/CEAN will verbally notify the Sacramento Fish and Wildlife Office within three days and will provide written notification of the incident within five days (USFWS 2005).

- Motor vehicles and equipment will only be fueled and serviced in designated service areas (USFWS 2005). All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 250 feet from any wetland/drainage habitat or water body. Prior to the onset of work, Beale AFB will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- During construction activities, all trash that may attract predators will be properly contained, removed from the work site daily, and disposed of. 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.
- All soil excavated during construction occurring near vernal pool wetlands will be removed and disposed of outside the project area. Coordination with Beale AFB Environmental Office and appropriate regulatory agencies is required prior to disposal of the excavated soil.
- The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated, and these areas will be outside of wetland/drainage areas.
- All vehicle operators will follow the posted speed limit on paved roads and a 20-mile per hour speed limit on unpaved roads (USFWS 2005).
- No pets or non-military firearms will be allowed in the project area (USFWS 2005).
- The Service has reviewed and concurred with the Beale AFB INRMP which includes a description of any pesticide use on Beale AFB property. Any pesticide use related to projects appended to this PBO will follow those guidelines.
- No trenches will be left open at the end of the day; trenched areas will be compacted and restored to normal grade. Excavated trenches will be revegetated.

In addition to implementing the general avoidance and minimization measures listed above, the following general measures are restrictions specific to the type of work being conducted.

Construction Restrictions – Culverts and Drainage Ditches

- All vegetation removed will be placed in an approved green waste site on Beale AFB.
- Exposed soil will be hydroseeded or covered with a geotextile to prevent sediments entering waterways.

Construction Restrictions – Emergency and Cleanup Actions: Fire Suppression, Spills, Accidents, Hazardous/Toxic Waste, and Munitions Site Cleanup

- Emergency fire department actions will be conducted base-wide that allow personnel to respond to emergency fires without delay. This will allow quick containment of any unexpected threat to human health, safety or the environment. It may require the use of excavators, bulldozers, dump trucks, and fire trucks. Emergency construction zones including staging areas, egress, and ingress routes will be designated on an emergency action project basis.
- Other emergency situations that can occur on Beale AFB are hazardous materials/waste spills, aircraft accidents, vehicle accidents, and sewer breaks. These emergencies can require quick response and immediate action to ensure environmental and public safety are addressed.
- Investigation, clean-up, containment, stabilization or removals of hazardous waste, or unexploded ordnance are all activities that may be conducted as part of the Environmental Remediation Program (ERP) and Military Munitions Response Program (MMRP).
- A Service-approved biological monitor will be on site for the duration of the project.
- During activities specifically related to the installation of a restoration program (including but not limited to, soil borings, drilling, installing soil vapor probes, geophysical surveys), no borings will be drilled in any sensitive habitat including vernal pools, unless deemed highly essential for the success of the investigation phase of the program. Consideration of alternatives must be accompanied and 9 CES/CEAN clearances must be obtained in advance for borings of this type.
- For all borings drilled within 15 to 20 feet of a wetland boundary, special care will be exercised to contain all drill cuttings to prevent their migration into the wetland area. All cuttings will be used to backfill boring or drilling holes, or will be removed from the site. No cuttings will be “stock piled.” All contained cuttings will be containerized and removed in accordance with contaminated soil removal procedures.
- Following the sampling phase of the investigation, all bore holes must be backfilled with clay material and the surface returned to the original grade and configuration. Any excess material shall be removed from the site and disposed of in an approved manner.

- No soil vapor probes shall be installed within 10 feet of a known wetland habitat.
- Following data collection efforts, all evidence of survey activity (i.e., stakes, flagging, etc.) will be removed from the site.

Construction Restrictions – Military Training Activities

- For all military training activities, Service-approved biologists will educate military personnel concerning identification and avoidance of sensitive areas (USFWS 1997a).
- Foxholes will not be constructed within 50 feet of vernal pools or swales and will be dug to a depth that does not penetrate soil hardpan. If hardpan penetration is necessary, foxholes will be dug a minimum 250 feet from vernal pools, unless hydrologically separated from the vernal pools. If there is hydrological separation, then the foxholes may be within 50 feet of vernal pools.
- All foxholes will be backfilled, revegetated according to general guidelines, compacted, and returned to normal grade.
- Foxholes will be dug only on slopes less than 10 percent.
- Temporary facilities, such as tents, porta-potties, trailers, and storage sheds, will not be erected within 50 feet of a vernal pool, unless they are hydrologically separated from the vernal pools.

Species-Specific Avoidance, Minimization, and Compensation Measures:

The following species-specific measures are proposed to avoid and minimize temporary disturbance and degradation of habitat for the four federally listed species that may occur on Beale AFB properties. This section also presents compensation ratios for each species.

Avoidance and Minimization Measures for Vernal Pool Crustaceans

- Best Management Practices (BMPs) will be implemented to prevent sediment from entering avoided vernal pools that are located within 250 feet, or have a hydrologic connection to the project site, including but not limited to, the use of silt fencing, straw bales, straw wattles, and standard procedures for temporary sediment disposal.
- A Service-approved biologist from 9 CES/CEAN will monitor all construction activities and the proposed work to ensure compliance with avoidance, minimization, and compensation components of the Proposed Action. The biological monitor will assist construction personnel in compliance with all conservation measures and guidelines. The monitor will be responsible for directing the placement of all fences, stakes, flags, and barriers protecting sensitive resources.

- A Service-approved biological monitor from 9 CES/CEAN will conduct environmental awareness training for construction crews before and during project implementation. The education program will briefly cover threatened and endangered species and their habitats that might be encountered during construction or be within close proximity of the Proposed Action project sites. Awareness training will cover all restrictions and guidelines that must be followed by construction crews to avoid or minimize impacts on threatened and endangered species and their habitat, and will include the penalties for violating the provisions of the Act. Environmental awareness training will be conducted prior to construction, when crews are about to enter potentially sensitive areas and when new personnel join the construction crews
- Potential vernal pool crustacean habitat adjacent to the construction area will be protected by placing orange barrier fencing material around the perimeter of the vernal pool in coordination with the biological monitor.
- All work boundaries and staging areas will be clearly identified with staking or flagging to ensure no vehicles or equipment will enter vernal pool areas.
- All road areas will be watered during project construction to prevent excessive dust from silting nearby vernal pools.

Table 1 Effects Thresholds for Vernal Pool Crustaceans

| Criteria | Level 1 | Level 2 | Level 3 |
|------------------------|--|--|--|
| | No Effect | May Affect, Not Likely to Adversely Affect | May Affect, Likely to Adversely Affect |
| Proximity to Resources | <p>Work beyond 250' of wetlands and no hydrological connectivity</p> <p>Work on paved/gravel surfaces</p> <p>Work within paved/gravel road shoulders</p> | <p>Work outside wetlands but within 250 feet of wetlands that meet the following criteria:</p> <ul style="list-style-type: none"> • wetland is higher in elevation than the work site • wetland area is upstream of the project • a physical barrier to hydrological connectivity is present • shallow excavation (not penetrating the hardpan), or • other reasons why wetlands are not impacted | <p>Work within 250 feet of wetlands that meet the following criteria:</p> <ul style="list-style-type: none"> • wetland is lower in elevation than the work site • wetland area is downstream of the project • hydrological connectivity is present • excavation penetrating the hardpan, or • other reasons why wetlands are impacted |

Table 2 Response Based On Effects Thresholds for Vernal Pool Crustaceans

| Criteria | Level 1 | Level 2 | Level 3 |
|-----------------------------------|---|--|---|
| | No Effect | May Affect, Not Likely to Adversely Affect | May Affect, Likely to Adversely Affect |
| Submittal to Service | No submittal | <p>A project description with map showing all wetlands areas within 250 feet, describing how wetlands will be avoided and how the effects will be minimized to an insignificant level. The submittal shall include the following information of the project site and surrounding area:</p> <ul style="list-style-type: none"> • Conceptual design • Topography description • Hydrological description • Soil/hardpan data • Species data (proximity of past occurrences in relation to project area) • Physical barriers between project and wetlands • Effects of the project • Justification for the NLAA recommendation | <p>A project description with map showing all wetlands areas within 250 feet. More specific project design and biological data will be provided for portions of the project that may affect wetlands or riparian areas.</p> <ul style="list-style-type: none"> • Detailed design • Topography description • Hydrological description • Soil/hardpan data • Species data (including site specific survey data, if applicable) • Explanation of direct or indirect impacts • Physical barriers between project and wetlands • Effects of the project • Proposed compensation • Justification for the Likely to Adversely Affect determination |
| Location | SAMP Low Integrity/ Developed Areas; SAMP Low Integrity/ Undeveloped Areas; | SAMP Low Integrity/Developed Areas and SAMP Low Integrity/Undeveloped Areas; and SAMP High Integrity/Conservation Areas | SAMP Low Integrity/Developed Areas; SAMP Low Integrity/Undeveloped Areas; and SAMP High Integrity/Conservation Areas |
| Avoidance & Minimization Measures | All equipment and excess soil must stay on paved/gravel surfaces | General Avoidance Measures; Species-Specific Avoidance Measures; No compensatory mitigation required | General Avoidance Measures; Species-Specific Avoidance Measures; Compensatory mitigation may be required |

Compensation Measures for Vernal Pool Crustaceans:

For direct effects to vernal pool crustaceans habitat located within the Beale AFB Core Recovery Area (BCRA) (Zone 2) (USFWS 2005), Beale AFB will provide the following:

- Preservation of existing vernal pools at a 4:1 ratio or;

For direct effects to vernal pool crustaceans habitat located outside of the BCRA, Beale AFB will provide the following:

- Preservation at a 3:1 ratio or;

For indirect effects to vernal pool crustacean habitat located within the BCRA (Zone 2), Beale AFB will:

- Preserve existing vernal pools at a 4:1 ratio.

For indirect effects to vernal pool crustacean habitat located outside of the BCRA (Zone 2), Beale AFB will:

- Preserve existing vernal pools at a 3:1 ratio.

In addition to the preservation of vernal pool wetlands the Corps may require a restoration /creation component to any mitigation for impacts to wetlands where a Corps permit is required.

Once effects to an entire vernal pool have been compensated for, future effects to that vernal pool will no longer require additional compensation.

Beale AFB implements the following compensation for aquatic features other than those traditionally considered vernal pool habitat, but may occasionally support vernal pool crustaceans. For impacts to artificial roadside drainages, Beale AFB will perform the following:

- Functional replacement at a maximum ratio of 1:1.
- Provide restoration/creation of riparian vegetation on Beale AFB at a 2:1 ratio.
- For natural streams, drainages, or other WoUS that exceed 0.1 acre, Beale AFB will reroute the waters around the project site and perform restoration of the impacted stream corridor at a ratio of 1.5:1 (provide a functional lift). Restoration projects will improve the ecological, physical, hydrological, and geomorphic function of the stream corridor through riparian plantings, stream bank protection, instream fish habitat improvements, etc.

Table 3 Vernal Pool Crustacean Compensation

| Location | Direct Effects Compensation ratios | Indirect Effects Compensation ratios |
|---|--|--|
| BCRA (Zone 2) (effects within the BCRA will be compensated within the BCRA) | 4:1 Preservation of existing vernal pool crustacean habitat* | 4:1 Preservation of existing vernal pool crustacean habitat |
| Outside BCRA | 3:1 Preservation of existing vernal pool crustacean habitat* | 3:1 Preservation of existing vernal pool crustacean habitat |

*the Army Corps of Engineers may require additional mitigation to fulfill no net loss of wetlands.

There are three areas within Beale AFB that are used for vernal pool preservation, restoration, and creation. These areas have been designed to provide compensation for past and future base-wide construction impacts. The three vernal pool restoration areas allow for approximately 47 acres of onsite restoration at previously disturbed wetland areas on Beale AFB.

Beale AFB tracks the total available restored wetlands and all projects that have utilized these wetlands for compensation of impacts. Under the SAMP, all existing SAMP management and compensation strategies will be continued.

Should Beale AFB vacate or transfer title to any part of the lands set aside as vernal pool preservation or restoration/creation, the Air Force shall assure provisions subject to Service approval are in place, prior to vacating or transferring title, for the protection of the vernal pool tadpole shrimp and vernal pool fairy shrimp and their habitat in perpetuity.

Avoidance and Minimization Measures for the Valley Elderberry Longhorn Beetle

Beale AFB will implement the following avoidance and minimization measures to protect the VELB. These measures will adhere to the guidelines established by the Service in “*Conservation Guidelines for the Valley Elderberry Longhorn Beetle*,” July 1999 (guidelines) (USFWS 1999b).

- When Beale AFB conducts work near an elderberry shrub, as recommended by the Service 1999 guidelines for this species, a 100-foot buffer will be maintained from all elderberry shrubs in the project area with 1 or more stems measuring more than 1 inch or greater in diameter at ground level. All areas to be avoided during construction will be fenced and flagged. In areas where encroachment on the 100-foot buffer cannot be avoided, a buffer of at least 20 feet from the dripline of each elderberry plant may be established with Service approval. Therefore, all the avoidance and minimization measures for the VELB will be implemented if a project occurs within 20-100 feet from the dripline of an elderberry shrub with appropriate notification to the Service. If

encroachment within 20 feet from the dripline of an elderberry shrub is expected to occur, then compensation as described in the Service 1999 guidelines will apply.

- Signs will be erected every 50 feet along the edge of the avoidance areas with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. The Endangered Species Act of 1973, as amended, protects this species. Violators are subject to prosecution, fines, and imprisonment”. The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.
- In addition to the guidelines described and approved in the Beale AFB INRMP, no pesticides, fertilizer, or other chemicals that might harm the beetle or its host plant will be used within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.
- Dust control procedures, such as regular watering of disturbed soils and soil piles and covering of soil piles, will be used throughout the construction period. Soil disturbance activities will be delayed during high wind conditions.

Restoration and maintenance of disturbed areas within 100 feet of elderberry shrubs will be accomplished by implementation of the following measure:

- Any damage done to the buffer areas (area within 100 feet of elderberry plants) during construction will be restored. Erosion control, in accordance with the Beale AFB Storm Water Pollution Prevention Program (Beale AFB 2008e), will be provided and the areas will be re-vegetated where necessary with appropriate native plants.

Beale AFB will follow the guidelines for transplanting elderberry shrubs including the following:

- All elderberry plants with one or more stems measuring 1.0 inch or greater in diameter at ground level will be transplanted within a Service-approved conservation area.
- The monitor will immediately report any unauthorized take of the VELB or its habitat to the Service.
- The elderberry shrubs will be transplanted when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. This will reduce shock to the plant and increase transplantation success.

In addition, Beale AFB will implement seasonal avoidance based on the protocols of the SAMP (Beale AFB 2008d):

- All construction near elderberry shrubs will take place between July and October.

Compensation Measures for the Valley Elderberry Longhorn Beetle

Beale AFB will implement the following compensation ratios to protect the VELB and its habitat. These ratios are in accordance with the 1999 Service guidelines. The requirements are based on stem class size, presence/absence of exit holes, and location in riparian and non-riparian areas. Since studies have found that the VELB is more abundant in dense native plant communities with a mature overstory and a mixed understory, the Service guidelines require planting a mix of native plants associated with the elderberry shrubs. The ratios of associated native plants for each elderberry seedling/cutting planted range from 1:1 to 2:1. The associated native plantings are required to be monitored with the same survival criteria used for the elderberry seedlings. The guidelines also encourage planting or seeding the area with native herbaceous species because this process may discourage unwanted non-native species from becoming established in the area. For more detailed information on the compensation requirements, please refer to the 1999 Service guidelines for this species. Although elderberry shrubs have primarily been identified along the Best Slough and Dry Creek area on Beale AFB, these compensation requirements apply regardless of the project location at any of the SAMP development zones.

Table 4 Elderberry Stem Replacement Ratios

| Stem Size | Exit Holes | Riparian | Elderberry Seedling Ratio | Associate Native Spp. Ratio |
|------------------|-------------------|-----------------|----------------------------------|------------------------------------|
| 1"-3" | No | No | 1:1 | 1:1 |
| 1"-3" | Yes | No | 2:1 | 2:1 |
| 3"-5" | No | No | 2:1 | 1:1 |
| 3"-5" | Yes | No | 4:1 | 2:1 |
| >5" | No | No | 3:1 | 1:1 |
| >5" | Yes | No | 6:1 | 2:1 |
| 1"-3" | No | Yes | 2:1 | 1:1 |
| 1"-3" | Yes | Yes | 4:1 | 2:1 |
| 3"-5" | No | Yes | 3:1 | 1:1 |
| 3"-5" | Yes | Yes | 6:1 | 2:1 |
| >5" | No | Yes | 4:1 | 1:1 |
| >5" | Yes | Yes | 8:1 | 2:1 |

Avoidance and Minimization Measures for the Giant Garter Snake

When construction activities are within 200 feet from one of the three suitable or marginally suitable giant garter snake habitat locations, Reed's Creek and Best Slough on Beale AFB or the un-named irrigation canal on the Lincoln Receiver Site, Beale AFB will implement the following avoidance and minimization measures to protect the giant garter snake.

- Construction activities will be conducted between May 1st and October 1st, when direct mortality will be lessened because snakes are likely to actively avoid danger.

- A 200-foot buffer will be implemented surrounding suitable aquatic habitat for GGS. No construction activities will occur within the 200-foot buffer from October 1 through May 1.
- Disturbance to all hibernacula areas (i.e., rocks, burrows, logs, brush piles, etc.) will be avoided from October 1 to May 1 and during cold or cool-weather periods when GGS are inactive or moving into upland habitat in search of hibernacula.
- All construction-related holes, ditches or trenches will be covered to prevent entrapment of individual GGS. Provisions for egress for trapped snakes will be provided. If a trapped GGS is discovered the Service will be immediately contacted to recommend appropriate action.
- Aquatic habitat must be de-watered a minimum of 15 days prior to the start of construction activities that will take place within that habitat.
- If restoration of habitat is a component of the replacement habitat, one (1) year of monitoring restored habitat with a photo documentation report due one (1) year from implementation of the restoration with pre- and post-project area photos is required.
- Five years of monitoring replacement habitat with photo documentation report due each year.

Table 5 Effect Levels and Compensation Ratios for Giant Garter Snake Habitat

| Effect Level | Duration | Area (acres) | Compensatory mitigation |
|--------------|-----------------------------------|-----------------------------------|---|
| Level 1 | 1 season | Less than 2.5 acres and temporary | Restoration |
| Level 2 | 2 seasons | Less than 2.5 acres and temporary | Restoration plus 1:1 replacement |
| Level 3 | More than 2 seasons and temporary | Less than 2.5 acres and temporary | 3:1 Replacement (or restoration plus 2:1 replacement) |

Action Area

The action area, as defined by the Service, includes all areas affected directly or indirectly by the proposed actions. In this case, the action area is comprised of the Beale AFB properties. Beale AFB is a 22,944-acre military installation in Yuba County, California, approximately 40 miles north of Sacramento, 13 miles east of Marysville, and 25 miles west of Grass Valley. Beale AFB owns the Lincoln Receiver Site, which occupies over 235 acres and is located in Placer County, approximately 15 miles south of the main AFB and 5 miles west-southwest of Lincoln,

California. Beale AFB also owns the railroad right-of-way that extends south of Beale AFB for approximately 4 miles until it crosses Highway 65. The Lincoln receiver site contains a global high frequency radio communications receiver that provides quality communications for USAF/U.S. Navy west coast operations. Beale AFB is between the Yuba and Bear rivers in an area characterized by the transition from the eastern margin of the Sacramento Valley to the Sierra Nevada foothills. It has a Mediterranean climate with most rain falling during the winter (from October through February). Average air temperature is 60.8 degrees Fahrenheit, and average annual precipitation is 18-22 inches. The majority of the site has a current and historical use of grazing and rangeland. The site topography is comprised primarily of rolling grasslands between 60-500 feet in elevation. Beale AFB properties include many aquatic features, including perennial streams, seasonal drainages, vernal pools, artificial ponds, and smaller ponded areas within the seasonal drainages. The main vegetation community present on-site at Beale AFB is annual grasslands.

Status of the Species and Environmental Baseline

Vernal pool fairy shrimp

See the Service's most recent Five-year Review for this species.

Vernal Pool Tadpole Shrimp

See the Service's most recent Five-year Review for this species.

Distribution of Habitat within Beale AFB Property of Vernal Pool Crustaceans

In March of 2008, Beale AFB conducted a soil aquitard study to determine the depth of the soil aquitard, a subsurface soil horizon that restricts root growth and movement of water in the various geological formations on Beale AFB. Results from this study indicated that there is a high degree of variation in depth to soil aquitard even within similar geomorphic formations (URS Corporation 2008). Therefore, it is likely that the large variation in aquitard depth across small spatial scales will occur in the rest of the Beale AFB, implying that many different areas of Beale AFB have potential to support the vernal pool crustaceans. The Lincoln Receiver Site was not included in this aquitard study, although previous surveys of the site, including a conventional wetland delineation conducted at the Lincoln Receiver Site in 2005, have documented vernal pool habitat on the Lincoln Receiver Site (Figures 3a and 3b).

Much of the vernal pool habitat on the Beale AFB properties provides suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp. Vernal pools at Beale AFB occur in association with several geologic formations and soil types. At Beale AFB, vernal pools are associated with four geologic formations: Laguna, Riverbank, Modesto, and Mehrten formations (Smith and Verrill 1998). These formations are primarily located in the western two-thirds of Beale AFB.

Beale AFB and the Lincoln Receiver are both included within the Core Recovery Areas as described within the vernal pool recovery plan (USFWS 2005). The majority of the Lincoln Receiver is within the Western Placer County Core Area, and the Beale Core Area is entirely contained within the boundaries of Beale AFB. Both Core Areas are Zone 2 priority areas, also described within the vernal pool recovery plan (USFWS 2005).

Vernal Pool Fairy Shrimp

Numerous data sources, including CNDDDB and Beale AFB, have reported the occurrence of the vernal pool fairy shrimp on Beale AFB properties. There is one CNDDDB occurrence of the vernal pool fairy shrimp in the northwest corner of Beale AFB (CDFG 2009). This occurrence was observed in 1992 and was in a vernal pool in the vicinity of Reeds Creek (CDFG 2009).

There are four additional occurrences outside of the Beale AFB but within a 10 mile radius of the Beale AFB. Additionally, the species was detected in other surveys efforts at Beale AFB. In 1992/1993, vernal pool surveys detected vernal pool fairy shrimp in 20 of 116 vernal pools surveyed. In 1996, the species was recorded in 29 of 1,000 vernal pools surveyed (see Jones & Stokes 1996 in Beale AFB 2005a). In 2006 vernal pool fairy shrimp cysts were detected at 5 sample sites during a dry season survey by EM Assist (EM Assist 2006). The species was not detected during vernal pool restoration monitoring in 2006 in either reference pools or restored pools (SRS 2006). In 2007, the vernal pool fairy shrimp cysts were detected during dry season surveys, although adults were not detected during subsequent wet season surveys in 2007/2008 (EDAW 2008) and dry season surveys in 2008 (Helm 2008). In 2008 the species was detected in three vernal pools during two phases of vernal pool restoration monitoring in the west flightline area of Beale AFB (Foothill and Associates 2008; ECORP 2008).

There are no CNDDDB recorded occurrences of vernal pool fairy shrimp on the Lincoln Receiver Site, although there are recorded occurrences within a 10-mile radius of the site, the closest of which is a 2002 occurrence less than a mile south of the Lincoln Receiver Site (CDFG 2009). Special status crustacean sampling in 1997 detected both the vernal pool fairy shrimp (*Branchinecta lynchi*) and the vernal pool tadpole shrimp (*Lepidurus packardi*) during wet season surveys. Contract biologists surveyed the LRS in the 2009-2010 wet season for listed vernal pool crustacean species, but did not detect them during wet season surveys. They did find 3 pools with cysts during the dry season sampling (AECOM 2011). Beale AFB's contractors hypothesized that the dense thatch accumulation in these pools is altering the hydroperiod, chemistry, and other physical traits making the pools unsuitable for vernal pool crustacean use (AECOM 2011). Goat grazing was implemented at the LRS in 2011 to better manage listed species' habitat.

The vernal pool fairy shrimp is known to occur on Beale AFB properties. The presence of suitable habitat for the species and documented occurrences suggests that the species is likely to persist on the Beale AFB properties given current conditions. On Beale AFB the documented occurrences, and presumably most of the suitable habitat, is concentrated within the northwestern portion of Beale AFB that is designated as a SAMP High Integrity/Conservation Area. This area

is also part of the vernal pool fairy shrimp core recovery area. A number of other occurrences are scattered throughout the center of Beale AFB and in the very northern portion of Beale AFB.

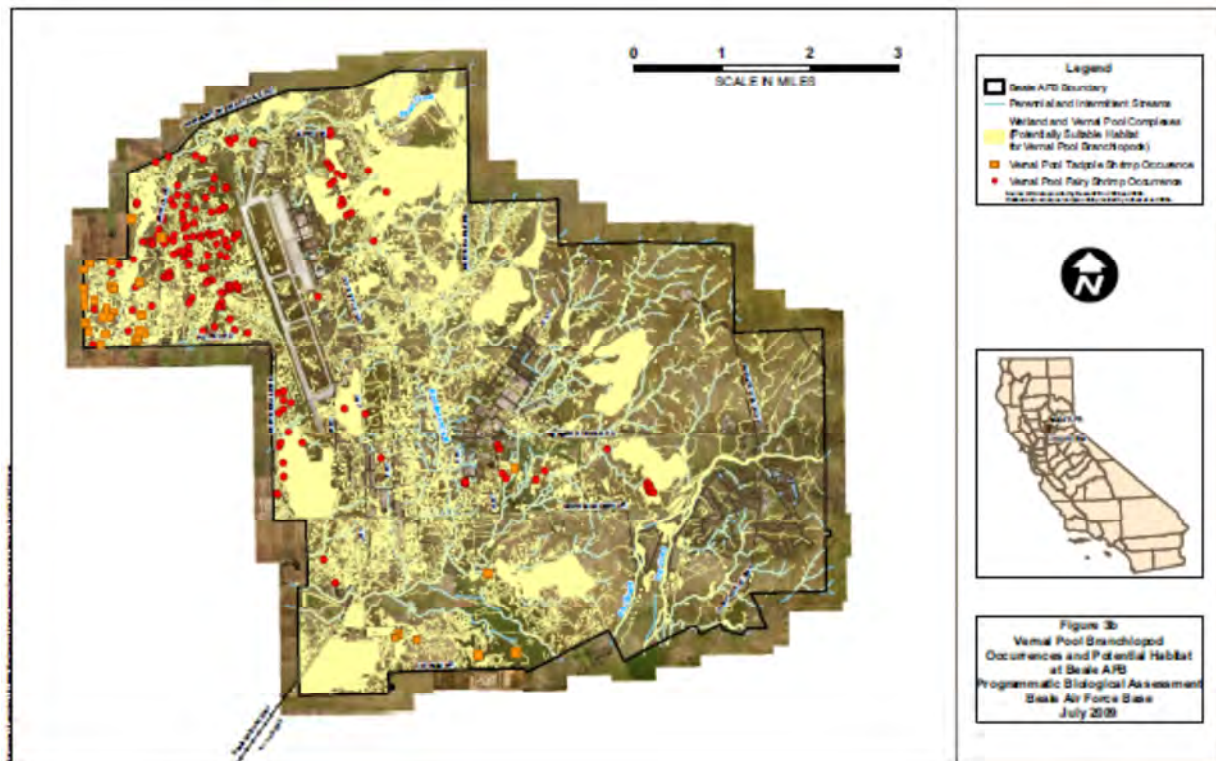


Figure 3a Vernal Pool Crustacean Occurrences and Potential Habitat, Beale AFB

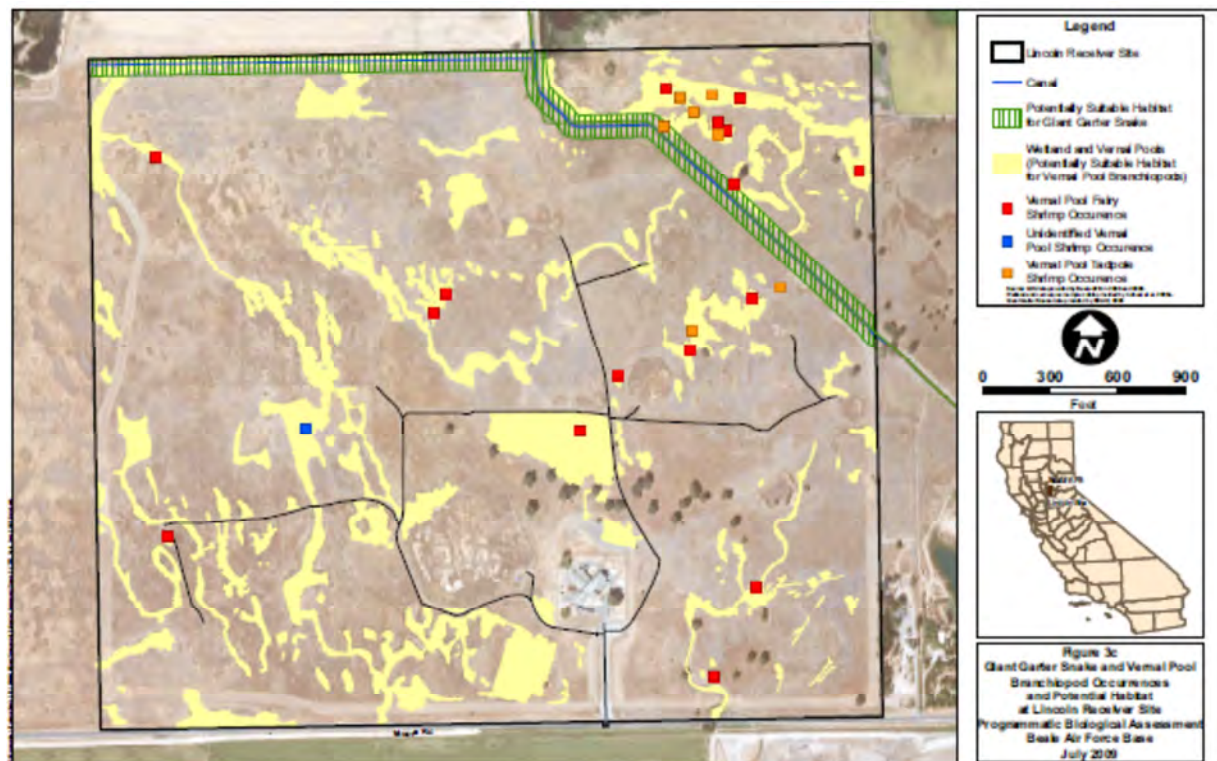


Figure 3b Vernal Pool Crustacean Occurrences and Potential Habitat, Lincoln Receiver

On the Lincoln Receiver Site the documented occurrences are scattered throughout the site. The majority of the Lincoln Receiver Site is also part of the vernal pool fairy shrimp core recovery area. Although there is likely suitable habitat for this species throughout the Beale AFB properties, extensive sampling efforts have generally supported these trends.

Vernal Pool Tadpole Shrimp

Numerous data sources, including CNDDDB and Beale AFB, have reported the occurrence of the vernal pool tadpole shrimp on Beale AFB properties. There are three CNDDDB recorded occurrences of vernal pool tadpole shrimp on Beale AFB, two of which are observations from 1991 and one of which is from 1992. All were within the vernal pools located at the northwest corner of Beale AFB (CDFG 2009). The species was also detected in other survey efforts conducted between 1992 and 2008. In the 1992/1993 surveys, vernal pool tadpole shrimp were detected in three of 116 vernal pools surveyed on Beale AFB. In 1996 the species was recorded in 37 of 1,000 vernal pools surveyed on Beale AFB (see Jones & Stokes 1996 in Beale AFB 2005a). In 2006, vernal pool tadpole shrimp were detected in approximately half of sampled restored pools and all of the vernal pool reference pools on Beale AFB (SRS 2006). In 2007/2008 wet season surveys, vernal pool tadpole shrimp were detected in two vernal pools surveyed (EDAW 2008). In addition, vernal pool tadpole shrimp cysts were detected during the dry season surveys in a single location on Beale AFB in 2008 (Helm 2008). In 2008 the species was also detected in two vernal pools during two phases of vernal pool restoration monitoring in the west flightline area of Beale AFB (Foothill and Associates 2008; ECORP 2008).

There is a CNDDDB recorded occurrence of the vernal pool tadpole shrimp on the Lincoln Receiver Site from 1996. This observation was located in the northeastern portion of the Lincoln Receiver Site (CDFG 2009). In 1997 a branchiopod survey of the Lincoln Receiver Site detected this species in six of 25 pools sampled (KEA Environmental 1997). Contract biologists surveyed the LRS in the 2009-2010 wet season for listed branchiopod species, but did not detect them during wet season surveys. They did find 3 pools with cysts during the dry season sampling (AECOM 2011).

The vernal pool tadpole shrimp is known to occur on Beale AFB properties. The presence of suitable habitat for the species and documented occurrences suggests that the species is likely to persist on the Beale AFB properties given current conditions. On Beale AFB the documented occurrences, and presumably most of the suitable habitat, is concentrated within the northeastern portion of Beale AFB that is designated as a SAMP High Integrity/Conservation Area. This area is also part of the vernal pool core recovery area. On the Lincoln Receiver Site the majority of documented occurrences, and presumably most of the suitable habitat, is concentrated within the northeastern corner of the Lincoln Receiver Site. The majority of the Lincoln Receiver Site is also part of the vernal pool core recovery area. Although there is likely suitable habitat for this species throughout the Beale AFB properties, extensive sampling efforts have generally supported these trends. However, each proposed construction activity is being considered on an individual basis and habitat surrounding each activity would be evaluated on a project-by-project basis.

Giant Garter Snake

See the Service's most recent Five-year Review for this species.

Distribution of Habitat within Beale AFB Property for Giant Garter Snakes

Suitable habitat for the GGS exists on Beale AFB, mostly in the form of low gradient creeks and marshes. A previous study at Beale AFB identified a portion of Reed's Creek and a portion of Best Slough as areas of suitable giant garter snake habitat. These two areas contained permanent features such as sufficient water during the active summer season to supply cover and food such as small fish and amphibians; and emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat (Hansen 2005). Giant garter snakes are also known to utilize rice fields, which are present adjacent to Beale AFB west of the flight line near the southern border of Beale AFB (USFWS 1999a; Hansen 2005).

There have been no recorded occurrences of the giant garter snake at Beale AFB. The nearest CNDDDB recorded occurrence is approximately 9 miles from the southwestern-most corner boundary of Beale AFB, where the species was observed prior to 1986 (CDFG 2009). Most of the CNDDDB records for this species occur further than 9 miles west and southwest of Beale AFB in habitats that occur at lower elevation. In addition, a trapping effort in selected suitable giant garter snake habitat on Beale AFB by Eric Hansen in 2005 did not detect the presence of giant garter snake (Hansen 2005). The failure to detect GGS during these surveys was likely a result of the location of Beale AFB, which is in the easternmost portion of the species range, and the

fact that if GGS does occur at Beale AFB it occurs in low densities (Hansen 2005). There is a giant garter snake occurrence reported to the Service, seen by John Little in 1998 in the Dry Creek watershed south of Beale AFB. However, this occurrence has not been confirmed (Beale AFB 2008c). In 2010, a reported sighting of a GGS was made approximately 4 miles north and cross the Feather River from Beale AFB, but also has not been confirmed (pers. com. PG&E).

There is suitable habitat for the GGS at the Lincoln Receiver Site. The suitable habitat is located along the unnamed canal in the northeastern portion of the Lincoln Receiver Site, although the GGS was not observed during surveys conducted in July 2005 (EDAW 2006). The closest documented CNDDDB occurrence of the GGS was observed in 1986 and is approximately 8 miles southwest of the Lincoln Receiver Site (CDFG 2009).

The giant garter snake has potential to occur on Beale AFB properties, which contain suitable habitat. Within these properties, the GGS only has the potential to occur within the areas described above, Reed's Creek, Best Slough on Beale AFB, and the unnamed canal on the Lincoln Receiver Site. Although no occurrences of GGS have been documented on the Beale AFB properties, the suitable habitat present and presence in the general area suggest that the species has the potential to occur in the specified locations.

Valley Elderberry Longhorn Beetle

See the Service's most recent Five-year Review for this species.

Distribution of Habitat within Beale AFB Property for the Valley Elderberry Longhorn Beetle

There is suitable elderberry shrub habitat for valley elderberry longhorn beetles within the Dry Creek/Best Slough SAMP High Integrity/Conservation Area of Beale AFB which contains elderberry shrubs. This area is on Best Slough and designated for preservation located on the southeastern side of Beale AFB (EDAW 2005). Hutchinson Creek, in the center of Beale AFB, is the only other area on the Beale AFB properties that contains elderberry shrub habitat.

Multiple sources have recorded the presence of the valley elderberry longhorn beetle on Beale AFB property and in the vicinity. Although there are no documented CNDDDB occurrences of the valley elderberry longhorn beetle on Beale AFB, the nearest documented CNDDDB occurrence of the valley elderberry longhorn beetle is approximately 1.5 miles north of the northwest corner of Beale AFB (CDFG 2009). This record is from 2002 and indicates that a valley elderberry longhorn beetle was found near a transmission line. There are 11 additional CNDDDB documented occurrences, consisting of species and exit hole observations, within a 10-mile radius of the action area (CDFG 2009). In addition, a 2005 survey of elderberry shrubs on Beale AFB southeast corner of Beale AFB performed by EDAW found that 13 of 51 elderberry shrubs surveyed contained valley elderberry longhorn beetle exit holes (EDAW 2005).

There is no suitable elderberry shrub habitat for the valley elderberry longhorn beetle at the Lincoln Receiver Site. The unnamed canal in the northeast corner of the Lincoln Receiver Site is unvegetated and contains no elderberry shrubs along its banks. The remaining area of the site is

largely vernal pool habitat that would not support elderberry shrubs (Beale AFB 2008a). Numerous data sources, including CNDDDB and Beale AFB, have not identified the occurrence of the valley elderberry longhorn beetle at the Lincoln Receiver Site. The closest documented occurrence is a CNDDDB recorded occurrence from 2003 approximately 8 miles north of the Lincoln Receiver Site (CDFG 2009).

The valley elderberry longhorn beetle has the potential to occur on Beale AFB in the Dry Creek/Best Slough SAMP High Integrity/Conservation Area in the southwest corner of Beale AFB and Hutchinson Creek where elderberry shrubs exist. These two locations are the only locations on the Beale AFB properties where the valley elderberry longhorn beetle has the potential to occur. However, if other elderberry shrubs are detected on the Beale AFB properties, this statement should be reevaluated and the Service will be notified. The presence of the elderberry shrubs in these areas and documented evidence of the species suggests that the species is likely to be present.

Analytical Framework for the Jeopardy Determination

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this PBO relies on four components: (1) the *Status of the Species*, which evaluates the range-wide condition, the factors responsible for that condition, and the survival and the recovery needs for each species; (2) the *Environmental Baseline*, evaluates the condition of the listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of those species; (3) the *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on these species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on these species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of each species current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of each species and the role of the action area in survival and recovery of those species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Effects of the Action

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Direct and Indirect Effects

Direct effects are caused by the action during the time that the action is taking place. Direct effects can occur within the entire action area, including the project footprint and beyond. The effects would directly affect the species, for example, those actions that would immediately destroy or adversely affect habitat or displace animals and plants. Individuals of listed crustaceans and their cysts will be directly injured or killed by activities leading to the destruction (i.e. filling) of habitat in which they live. The activities described in this PBO will result in the filling of some vernal pool crustacean habitat, thus resulting in direct effects to the vernal pool crustaceans. By the nature of the actions described and the intended scope of this PBO, the Service does not anticipate the direct effects to vernal pool crustaceans to be greater than one half of an acre of habitat per year for the five year life of this PBO.

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action, but would still be within the action area. Indirectly affected vernal pool habitat includes any individual vernal pools, or vernal pool complexes that are affected by changes in both surface and subsurface flows and any alteration in hydrological connectivity that may occur as a result of the action. Indirect effects may also include the alteration of the biotic guild of a vernal pool or complex through habitat disruption or the introduction of species.

Indirect effects have the potential to affect larger areas of habitat. It is expected that the actions described in this PBO will result in some level of indirect effect on the vernal pool crustaceans and their habitat, but will not exceed one acre per year for the five year life of this PBO.

Giant Garter Snake Direct and Indirect Effects

Direct and indirect effects of the described actions include activities that may occur within upland and aquatic habitat for GGS, and may result in 'take' of the snake. Beale AFB has a limited amount of potential GGS habitat, and the majority of that is located in areas not designated for development. Any planned activities that will occur within potential GGS habitat will be designed to avoid ground-disturbing activities between October 1 through May 1, the seasonal period when GGS are the least active, resulting in a decreased risk of direct mortality of snakes. The Service believes that after October 1, snakes are more likely to be dispersing into the uplands in search of overwintering hibernacula, and could be subject to mortality from project actions.

GGS have been observed traveling greater than 200 feet from aquatic habitat into the uplands; therefore activities within potential GGS habitat, or contiguous with areas of rice agriculture, could result in direct effects to this species. Actions that are likely to affect GGS on Beale AFB properties are most likely to be wetland management and emergency remediation actions in the Reed's Creek area or riparian restoration actions in the Best Slough area. These activities could remove vegetation cover and basking sites and fill or crush burrows or crevices; and may result

in the direct disturbance, displacement, injury, and/or mortality of snakes. Silting, fill, or spill of oil or other chemicals could cause loss of prey items in the potential aquatic habitat.

Because of the limited GGS habitat on Beale AFB and the location of that habitat, and by the nature of the actions described and the intended scope of this PBO, the Service does not anticipate the direct and indirect adverse effects to GGS as a result of impacts to habitat will be greater than the loss of one acre of habitat in any single year, and not more than 2.5 acres for the five year life of this PBO.

Valley Elderberry Longhorn Beetle

The potential for effects to VELB from actions that are covered under the SAMP PBO are limited to two locations on Beale AFB. Those locations are Dry Creek and Hutchinson Creek. Both locations are considered riparian habitat and are within the SAMP designated High Integrity/Conservation Area. The Service anticipates limited effects to VELB as a result of actions covered under this PBO. The Service anticipates that less than 40 stems of elderberry plants, of one inch or greater diameter will be adversely affected by activities as described over the five-year duration of this PBO.

Cumulative Effects

Cumulative effects, are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR §402.02). All future activities that occur on the Beale AFB properties are federal activities that will be reviewed under Section 7 of the Act, either through this programmatic consultation, or through future Beale AFB consultations, therefore, there will be no cumulative effects as a result of State or private activities within the action area.

Conclusion

After reviewing the current status of the vernal pool tadpole shrimp, vernal pool fairy shrimp, giant garter snake, and valley elderberry longhorn beetle, the environmental baseline for the action area, the effects of the proposed projects, and the cumulative effects, it is the Service's biological opinion that the projects, as proposed, are not likely to jeopardize the continued existence of the four federally-listed species.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to,

breeding, feeding, or sheltering. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

Amount of Extent of Take

The Service expects that incidental take of the vernal pool tadpole shrimp, vernal pool fairy shrimp, giant garter snake and valley elderberry longhorn beetle, will be difficult to detect or quantify for the following reasons: The aquatic nature of the giant garter snake and the vernal pool crustaceans; the relatively small body size of the vernal pool crustaceans and valley elderberry longhorn beetle, which makes the finding of a dead specimen unlikely; the secretive nature of the giant garter snake and their cryptic coloration; seasonal fluctuations in numbers or life cycles; and the occurrence of the species within habitats that make them difficult to detect. Due to the difficulty in quantifying the number of vernal pool tadpole shrimp, vernal pool fairy shrimp, giant garter snake and valley elderberry longhorn beetle that will be taken as a result of the proposed action, the Service is quantifying take incidental to a project appended to this PBO as the number of acres of habitat that will become unsuitable for one or more of the species as a result of the action.

Vernal Pool Crustaceans - During the 5-year SAMP duration, direct effects to vernal pool crustacean habitat shall not exceed 2.5 acres and indirect effects shall not exceed 5 acres. Each calendar year, direct effects shall be limited to 0.5 acres, and indirect effects shall be limited to 1.0 acres.

Annual and 5-year acreage limitations do not apply to 1) endangered species habitat restoration projects; 2) Environmental Restoration Program (ERP); and 3) Military Munitions Response Program (MMRP) hazardous waste clean-up projects.

Giant Garter Snake - During the 5-year SAMP duration, temporary effects shall not exceed 0.5 acres of aquatic habitat and 2.0 acres of upland habitat. Permanent loss is not allowed under this PBO and would require a separate consultation.

Elderberry Longhorn Beetle - During the 5-year SAMP duration, no more than 40 stems of one inch or greater diameter are authorized for direct impacts to elderberry shrub.

Effect of the Take

The Service has determined that the level of anticipated take is not likely to result in jeopardy to the vernal pool tadpole shrimp, vernal pool fairy shrimp, giant garter snake, and valley elderberry longhorn beetle. There is no designated or proposed critical habitat within the action area; therefore none will be affected.

Reasonable and Prudent Measures

Incidental take associated with the SAMP PBO in the form of harm, harassment, or killing of vernal pool tadpole shrimp, vernal pool fairy shrimp, giant garter snake and valley elderberry longhorn beetle, from habitat loss and through the actions included in this biological opinion will become exempt from the prohibitions described under section 9 of the Act as a result of the management activities described and compliance with the following *Terms and Conditions*, which implement the *Reasonable and Prudent Measures*.

1. All conservation measures must be implemented as described in the biological assessment and in the *Conservation Measures*, beginning on page 17, of this biological opinion.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Beale AFB shall comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. Beale AFB personnel, and all agents and contractors representing Beale AFB, will implement all the described conservation measures included in this PBO.
2. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the activities associated with the SAMP is approached or exceeded, Beale AFB shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Beale AFB must immediately reinstate formal consultation as per 50 CFR 402.16.
 - a. During those components of an action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Beale AFB will provide weekly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the *Project Description* and not analyzed in this biological opinion.
 - b. For those components of an action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, Beale AFB shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If an encounter occurs after normal working hours, Beale AFB shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of listed species are found, Beale AFB shall follow the steps outlined in the Salvage and Disposition of Individuals section below.

Disposition of Individuals Taken

In the event of injured and/or dead federally-listed species, the Service shall be notified within one day and the animals shall only be handled by a Service-approved, permitted biologist. Any injured federally-listed species shall be cared for by a licensed veterinarian or other qualified individual. In the case of a dead federally-listed species, the individual shall be preserved as appropriate, and held in a secure location until further instructions are received from the Service regarding the disposition of the specimen, or until the Service, or Service designee, is able to take custody of the specimen. Beale AFB must report to the Service within one calendar day any information about take or suspected take of a federally-listed species not exempted in this PBO. Notification must include date, time, and location of the incident, or of the finding of a dead individual. The Service contacts for such events are Daniel Russell, Deputy Assistant Field Supervisor, Endangered Species Program, Sacramento Fish and Wildlife Office, at (916) 414-6600, and Rebecca Roca, Resident Agent in Charge, Law Enforcement Division, at (916) 414-6600.

All new occurrences of federally-listed species will be submitted to the CNDDDB in order to maintain the most current record of the range of these species in California and to further the recovery efforts for the species.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

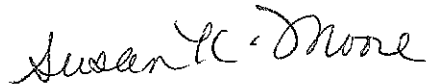
1. Beale AFB should continue to survey for both federally-listed species and species of conservation concern.
2. Beale AFB should continue monitoring created/restored vernal pool habitat and report on the long term success or failure of these structures and encourage the ongoing studies of their levels of functionality.
3. Beale AFB should continue working with both government agencies and non-government organizations to collect data on species and habitats that are a part of the Beale AFB environment in order to better understand the ecology of Beale AFB and the surrounding valley environment.
4. Beale AFB should continue working with the Service and CDFG to determine the best management strategies to maintain and improve the existing habitats on Beale AFB and to continue its strategic mission in America's defense.

REINITIATION NOTICE

This concludes formal consultation on the Beale Air Force Base Special Area Management Plan. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this response, please contact Rocky Montgomery, Senior Biologist, or Mark Littlefield, Branch Chief, Watershed Planning at the letterhead address or (916) 414-6520.

Sincerely,

A handwritten signature in cursive script that reads "Susan K. Moore".

Susan K. Moore
Field Supervisor

cc:

Ms. Kirsten Christopherson, Beale AFB, CA
Ms. Nancy Haley, USACE, Sacramento, CA
Mr. William Ness, USACE, Sacramento, CA

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