DRAFT

ENVIRONMENTAL ASSESSMENT
FOR
RUNWAY 08-26 AND TAXIWAY SHOULDERS AT JOINT BASE LANGLEY-EUSTIS – LANGLEY AIR FORCE BASE, VIRGINIA

PREPARED FOR:

Department of the Air Force

May 2023

Letters or other written comments provided may be published in the Final Environmental Assessment (EA). As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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COVER SHEET

ENVIRONMENTAL ASSESSMENT FOR RUNWAY 08-26 AND TAXIWAY SHOULDERS AT JOINT BASE LANGLEY-EUSTIS – LANGLEY AIR FORCE BASE, VIRGINIA

a. Lead Agency: The Department of the Air Force (DAF)

b. Proposed Action: Construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia

c. Inquiries regarding this document should be directed to the 633 Civil Engineer Squadron (CES) Environmental Element organization email at 633CES.CEI.Flight@us.af.mil.

d. Designation: Draft Environmental Assessment (EA)

e. Abstract: This EA evaluates the potential environmental impacts associated with the proposed construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways at JBLE – Langley. The purpose of the Proposed Action is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The need for the Proposed Action is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The lack of paved shoulders affects long-term mission readiness.

Potential alternatives to the Proposed Action were each evaluated based on selection standards established by the DAF. Alternatives that met all established selection standards were considered reasonable and retained for consideration in this EA. Alternatives that did not meet one or more of the standards were considered unreasonable and are not retained for consideration in this EA. Based on the results of this evaluation, two Action Alternatives, and the No Action Alternative, were carried forward for detailed analysis in this EA. The EA identifies and discloses potential impacts on the following environmental resources: airspace, noise, health and safety, air quality and climate change, land use, visual resources, earth resources, water resources, biological resources, cultural resources, socioeconomics, environmental justice and protection of children, infrastructure and utilities, transportation, and hazardous materials and waste. The Proposed Action would result in no impacts on land use, prime farmland, and socioeconomics.

Through the Environmental Impact Analysis Process, the DAF has determined that no significant impacts on environmental resources would occur under the Proposed Action, and no mitigation measures are warranted. The DAF has determined that, for components of the Proposed Action that occur within a floodplain and wetlands, impacts would remain less than significant with the application of best management practices.

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FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) FOR RUNWAY 08-26 AND TAXIWAY SHOULDERS AT JOINT BASE LANGLEY-EUSTIS – LANGLEY AIR FORCE BASE, VIRGINIA

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act of 1969 (NEPA), Title 40 of the Code of Federal Regulations (CFR) Parts 1500-1508 and the Air Force Environmental Impact Analysis Process Regulations (32 CFR Part 989), the Department of the Force (DAF) has prepared this Environmental Assessment (EA) to evaluate the potential impacts on the natural and human environment associated with the proposed construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia.

Purpose and Need

The purpose of the Proposed Action is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The need for the Proposed Action is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The lack of paved shoulders affects long-term mission readiness.

Proposed Action

The Proposed Action would construct asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways, in accordance with Unified Facilities Criterion (UFC) 3-260-01, *Airfield and Heliport Planning and Design*. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. UFC 3-260-01 requires taxiways to have a paved shoulder width of 10 feet or greater and requires 25 feet or greater on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate.

Alternatives

Action alternatives were evaluated against a set of selection standards to determine which alternatives would be carried forward for detailed environmental impact analysis. Multiple action alternatives were evaluated against selection standards. Only two action alternatives that met or partially met all selection standards were analyzed in detail for potential environmental impacts.

Alternative 1 would construct 25-foot-wide paved shoulders on Taxiways A, B, C, D, E, F, west and east H, K, North Ramp, and Runway 08-26. Alternative 1 also includes 25-foot combined paved and unpaved shoulders for Runway 08-26 and 25-foot combined paved and unpaved shoulders for all taxiways. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. Existing slot drains within the proposed shoulder areas would remain. Alternative 1 would also include construction of flat bottom swales on each side of the runway and installation of wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course pond. An existing drainage pumphouse to the southeast would be further utilized by redirecting stormwater flow from more southern drainage areas to be served by the pumphouse. All existing lighting on Runway 08-26 would be protected. Under Alternative 1, the airfield would be divided into 15 proposed work areas that have been

delineated based on aircraft operational efficiency and use of each facility across the airfield. The proposed work areas and construction schedule would allow the runway and taxiway work to be concurrent with the runway work area closures linking to the adjacent taxiway closures.

Alternative 2 would construct 10-foot-wide paved shoulders on Taxiways E and F and the North Ramp; 25-foot-wide paved shoulders on Taxiways B, D, K, and M, and Runway 08-26; and 50-foot-wide paved shoulders on Taxiway A, west H, and east H. Existing shoulder pavement across the airfield would be protected, and new shoulders would be installed on all taxiways and the runway. Existing decommissioned pavement south of Runway 08-26 would be demolished. Existing slot drains within the proposed shoulder areas would be removed, and new slot drains would be installed. Alternative 2 would also include two areas of proposed underground filtration for water quality. Existing lighting on Runway 08-26 would be demolished and replaced. Under Alternative 2, the airfield would be divided into the same 15 proposed work areas as described in Alternative 1.

Additionally, a No Action Alternative was analyzed. Under the No Action Alternative, the proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not proceed. Under the No Action Alternative, Runway 08-26 would continue to be noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. There would continue to be no off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The risk of foreign object debris (FOD) damage would remain elevated due to vehicle traffic use of the runway and taxiway surfaces. Wide-body aircraft with engine locations wider than the existing paved surfaces would continue to have the potential to generate FOD on active surfaces. Vehicle traffic, including Fire and Emergency Response, Aircraft Arresting System maintenance, airfield lighting maintenance, and Navigational Aids service vehicles would continue driving on the runway and taxiway surfaces. The existing airfield edge lights would remain outside the paved surface and be exposed to potential damage from grounds maintenance operations. Snow removal operations would continue to create tall windrows along active pavements, potentially impacting wide-body aircraft operations during heavy snow events, and all existing airfield compliance waivers based on pavement geometry would have to remain in place.

Environmental Consequences

Alternatives 1 and 2 would have no effect on land use, visual resources, or prime farmland.

For both Alternatives 1 and 2, the DAF has made a *no effect* determination for the federally listed sea turtles (green sea turtle [*Chelonia mydas*], Kemp's ridley sea turtle [*Lepidochelys kempii*], leatherback sea turtle [*Dermochelys coriacea*], and loggerhead sea turtle [*Caretta caretta*]), bat species (northern long-eared bat [*Myotis septentrionalis*], Indiana bat [*Myotis sodalis*], little brown bat [*Myotis lucifugus*], tricolored bat [*Perimyotis subflavus*], Rafinesque's eastern big-eared bat [*Corynorhinus rafinesquii macrotis*]), red knot (*Calidris canutus rufa*), roseate tern (*Sterna dougallii*), eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*), monarch butterfly (*Danaus plexippus*), West Indian manatee (*Trichechus manatus*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and rusty patched bumblebee (*Bombus affinis*). The Section 7 self-certification package was completed through the US Fish and Wildlife Service Virginia Ecological Services Field Office online project review process during preparation of this EA. Section 7 consultation, under the Endangered Species Act, has been initiated to seek concurrence with these determinations and to identify conservation measures to offset potential impacts.

Under Alternatives 1 and 2, negligible to minor impacts would occur on airspace; noise, health and safety, air quality and climate change; visual resources; earth resources; ground and surface water supplies and quality; the coastal zone; vegetation/wildlife habitat wildlife populations; cultural resources; socioeconomics, environmental justice and protection of children; infrastructure and utilities; transportation; and hazardous materials and wastes. While impacts on wetlands and floodplains would be

unavoidable under Alternatives 1 and 2 given the nature of the Proposed Action relative to the location of jurisdictional wetlands and the 100-year floodplain, compliance with all applicable Federal, state, local, and DAF regulations would ensure impacts on wetlands and the floodplain would be avoided or minimized to the greatest extent practicable.

Best Management Practices and Permit Requirements

Noise

Although construction-related noise impacts would be minor, the following best management practices (BMPs) would be implemented to further reduce the already limited noise effects:

- Heavy equipment mufflers would be properly maintained and in good working order.
- Personnel, particularly equipment operators, would don adequate personal hearing protection to limit exposure and ensure compliance with Federal health and safety regulations.

Health and Safety

- All contractors involved in construction would be responsible for following Federal Occupational Safety and Health Administration regulations and are required to conduct these activities in a manner that does not increase risk to workers, the DAF community, or the public.
- Mishap prevention program requirements, assignment of responsibilities for program elements, and program management information established within Air Force Instruction (AFI) 91-202, *The US Air Force Mishap Prevention Program*, dated 12 March 2020, incorporating change 1 on 20 March 2012, and implementing Air Force Policy Directive 91-2, Safety Programs would be followed.
- All proposed work would be completed in accordance with all Air Force Occupational Safety and Health 91-series standards in DAF Manual 91-203, Air Force Occupational Safety, Fire and Health Standards, dated 25 March 2022.
- The Air Force Occupational Safety and Health Program applies to all DAF activities, and its purpose is to minimize the loss of resources and provide individual protection from death, injuries, or illnesses by managing risks.

Air Quality

- JBLE – Langley operates under a Virginia Department of Environmental Quality (VDEQ) issued stationary Source Operating Permits which limits emissions for each criteria pollutant from stationary sources to less than 100 tons per year.
- Mobile sources, such as vehicle and aircraft emissions, are generally not regulated *under permitting requirements* and are not covered under existing stationary Source Operating Permits.
- Suitable fugitive dust control measures would be employed during construction activities to mitigate fine particulate emissions.
- All relevant Federal and state regulations, including any requirements to obtain a permit, would be followed to limit impacts on air quality.
- JBLE – Langley would comply with applicable VDEQ air regulations, including those for control of visible emissions and fugitive dust emissions (9 VAC 5-50-60 et seq.), open burning (9 VAC 5-130-10 et seq.) and permits for fuel-burning equipment (9 VA C 5-80-1100 et seq.), such as the emergency generator.

Water Resources

- Acquire all necessary wetlands and water resource permits for the Proposed Action, including, but not limited to, National Pollutant Discharge Elimination System stormwater permit(s), Environmental Resource Permit(s), Clean Water Act (CWA) Section 404 Dredge and Fill Permit, and Section 401 water quality certification.
- Implement BMPs as defined in Virginia Pollutant Discharge Elimination System (VPDES) permits to reduce or eliminate the potential for contaminants from entering surface water bodies and groundwater.

Biological Resources

- Identify all environmentally sensitive areas for avoidance during construction activities.
- Adhere to JBLE – Langley Integrated Natural Resources Management Plan measures.
- Implement BMPs as defined in VPDES permits to minimize impacts on soils and to prevent any adverse impacts on water quality that could affect listed species.
- Implement BMPs, such as reseeding disturbed areas with native vegetation, to reduce the spread of invasive species.

Hazardous Materials and Waste

- Procurement of hazardous and toxic materials is controlled and tracked through the Hazardous Materials Pharmacy (HAZMART). HAZMART provides centralized management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials.
- The 633 Civil Engineer Squadron Environmental Element maintains the JBLE – Langley Hazardous Waste Management Plan in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention,* and AFI 23-201, *Fuels Management*.
- JBLE – Langley is a large-quantity hazardous waste generator. In accordance with the requirements outlined in the JBLE – Langley Hazardous Waste Management Plan, hazardous wastes would be properly segregated, stored, characterized, labeled, and packaged for collection at designated initial satellite accumulation points.
- Construction contractors would be responsible for preventing spills by implementing proper storage and handling procedures and by following base requirements.
- Contractors would perform daily inspections of equipment, maintain appropriate spill containment materials on-site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the site.
- All hazardous materials used during the performance of work would be reported to the base for tracking and accountability purposes.
- Contractors would provide copies of safety data sheets to the base and maintain copies at the proposed project location.
- Safety monitoring for unexploded ordnance would be conducted during the earthwork portion of the project.
- All activities occurring within or close by any Munitions Response Site (MRS) or Environmental Restoration Program site, or within land-use control areas would require coordination with the JBLE Environmental Restoration Office prior to ground-disturbing activities.
- Through coordination the location of monitoring wells, the need for dig permits or land-use control waivers would be determined.
- For work within MRS, additional project planning would determine appropriate health and safety requirements and proper handling and disposal of any munitions and explosives of concern (MEC) or contaminated soils or groundwater that might be encountered during construction.

- Should MEC or contaminated soils or groundwater be encountered, they would be managed in accordance with base requirements and applicable Federal, state, and local laws and regulations.

Public Review and Stakeholder Coordination

Coordination letters were submitted to numerous public stakeholders, including the Virginia Department of Conservation and Recreation, VDEQ, Virginia Department of Wildlife Resources, Virginia Department of Historic Resources, Virginia Marine Council, National Oceanic and Atmospheric Administration Fisheries Service, US Army Corps of Engineers, US Department of Agriculture, USEPA, US Fish and Wildlife Service, US Geological Survey, and Native American tribes claiming cultural affinity to the area. An early notification of impacts on wetlands and floodplains was published in the *Daily Press* in April 2022. Copies of the notice and coordination letters are included in **Appendix A** of the EA. The Draft EA was released for public review for 30 days in May 2023, with a Notice of Availability published in the *Daily Press*.

Finding of No Significant Impact

Based on my review of the facts and analyses presented in the attached EA, which is hereby incorporated by reference, I conclude that Alternatives 1 and 2 implementing the Proposed Action would not have a significant impact on the natural or human environment either independently or cumulatively. The requirements of NEPA and the CEQ's regulations have been fulfilled. An Environmental Impact Statement is not required and will not be prepared.

Finding of No Practicable Alternative

Executive Order (EO) 11990, *Protection of Wetlands* (24 May 1977), directs agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of proposed actions in wetlands wherever there is a practicable alternative. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to implement actions in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands. In accordance with EO 11990 and 32 CFR Part 989, a Finding of No Practicable Alternative (FONPA) must accompany the Finding of No Significant Impact (FONSI) stating why there are no practicable alternatives to development within or affecting wetland areas.

Similarly, EO 11988, *Floodplain Management* (24 May 1977), requires Federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. If it is found that there is no practicable alternative, the agency must minimize potential harm to the floodplain and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. In accordance with EO 11988, a FONPA must accompany the FONSI stating why there are no practicable alternatives to development within or affecting floodplains.

Alternatives 1 and 2 implementing the Proposed Action would result in impacts on both wetlands and floodplains. The following FONPA is therefore presented with the FONSI, pursuant to EO 11990 and EO 11988.

***Wetlands*:** Wetland impacts would be reduced to the maximum extent possible through implementation of environmental protection measures, including acquiring all necessary wetlands and water resource permits for the Proposed Action, such as National Pollutant Discharge Elimination System stormwater permit(s), Environmental Resource Permit(s), CWA Section 404 Dredge and Fill Permit, and Section 401 water quality certification. DAF would also Implement BMPs as defined in VPDES permits

to reduce or eliminate the potential for contaminants from entering surface water bodies and groundwater. Pursuant to Section 404(b)(1) of the CWA, wetland impacts must be avoided to the greatest extent practicable. As noted in the attached EA, there are no practicable alternatives to the implementation of the Proposed Action that would avoid all impacts or further minimize impacts on wetlands. Removal of all surface water features and wetlands within the airfield has been permitted by the US Army Corps of Engineers under permit # NAO-2017-00574/VMRC# 17-V0458, with a timeline of completion ending 21 June 2028. All work in the wetlands would be conducted in accordance with the permit that was obtained for a previously examined airfield drainage project, including all terms and conditions, which include compensatory mitigation to ensure impacts are below the level of significance. Alternative 1 or Alternative 2 would be implemented in conjunction with or after Phases 2 and 3 of the previously examined airfield drainage project. Included in that previous project is the filling of airfield wetlands that might be impacted by Alternative 1 or Alternative 2; mitigation for that project includes the purchase of wetland credits. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11990, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to avoid or further reduce impacts on wetlands and that Alternatives 1 and 2 for implementing the Proposed Action includes all practical measures to minimize harm to the environment.

***Floodplains*:** Similarly, there is no practicable alternative to avoiding floodplains for implementing the Proposed Action at JBLE – Langley outside of floodplains. The majority of JBLE – Langley is within the 100-year floodplain. As noted in the attached EA, there are no practicable alternatives to the Proposed Action that would avoid all impacts or further minimize impacts on floodplains. Taking all the environmental, economic, and other pertinent factors into account, pursuant to EO 11988, the authority delegated by Secretary of the Air Force Order 791.1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and that Alternatives 1 and 2 for implementing the Proposed Action include all practical measures to minimize harm to the environment.

DEE JAY KATZER, Colonel, USAF
Date
Chief, Civil Engineer Division
Air Combat Command (ACC/A4C)

Attachment: *Draft Environmental Assessment for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base, Virginia*

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF APPENDICES

Page

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ABW	Air Base Wing
ACAM	Air Conformity Applicability Model
ACC	Air Combat Command
AFFF	Aqueous Film Forming Foam
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
APE	Area of Potential Effect
AQCR	Air Quality Control Region
BASH	Bird/Wildlife Aircraft Strike Hazard
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CBIC	Chesapeake Bay Impact Crater
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation Liability Act
CES	Civil Engineer Squadron
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
CONUS	continental United States
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DAF	Department of the Air Force
DAFMAN	Department of the Air Force Manual
dB	decibel(s)
dBA	A-weighted decibel(s)
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EESOH-MIS	Enterprise Environmental, Safety and Occupational Health Management Information System
EFH	Essential Fish Habitat
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
°F	Fahrenheit
FAA	Federal Aviation Administration
FMP	Fisheries Management Plan
FOD	foreign object debris
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FR	Federal Register
FS	Fighter Squadron
FTA	fire training area
FW	Fighter Wing
FWIS	Fish and Wildlife Information Service
GHG	greenhouse gas
GIS	geographic information system
GPM	gallons per minute
HA	Health Advisory
HAZMART	Hazardous Materials Pharmacy
HRSD	Hampton Roads Sanitation District
HQ ACC	Headquarters Air Combat Command
IDP	Installation Development Plan
IFE	in-flight emergency
IPaC	Information for Planning and Consultation
ISR	Intelligence, Surveillance, and Reconnaissance
JBLE	Joint Base Langley-Eustis
JBLE – Langley	Joint Base Langley-Eustis – Langley Air Force Base
L_{eq}	equivalent continuous sound level
LUC	land use control
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MC	munitions constituents
MMRP	Military Munitions Response Program
MMT	million metric tons
MRS	Munitions Response Site
MS4	Municipal Separate Storm Sewer System

MVA	megavolt-ampere(s)
MWh	megawatt hour(s)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PCASE	Pavement-Transportation Computer-Assisted Structural Engineering
PFAS	polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PL	Public Law
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RCRA	Resource Conservation and Recovery Act
ROCA	Record of Conformity Applicability
ROI	Region of Influence
RSL	regional screening level
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SOH	safety and occupational health
SWPPP	Stormwater Pollution Prevention Plan
tpy	tons per year
UFC	Unified Facilities Criterion/Criteria
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UXO	unexploded ordnance
VDEQ	Virginia Department of Environmental Quality
VDGIF	Virginia Department of Game and Inland Fisheries
VDWR	Virginia Department of Wildlife Resources
VOC	volatile organic compound
VPDES	Virginia Pollutant Discharge Elimination System
WOTUS	Waters of the United States

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The 633rd Air Base Wing (633 ABW) at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia, and Headquarters Air Combat Command (ACC) (HQ ACC) have identified significant deficiencies regarding the presence of paved shoulders and their current geometry at JBLE – Langley. To correct these deficiencies, construction of new shoulders for Runway 08-26 and its taxiways would be required. This Environmental Assessment (EA) was prepared to evaluate the potential environmental impacts of this proposed project in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 4331 et seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] Parts 1500-1508), the Air Force Environmental Impact Assessment Process (EIAP) Regulations at 32 CFR 989, and various Air Force Instructions (AFIs) and Executive Orders (EOs) including, but not limited to, AFI 32-1015, *Integrated Installation Planning*.

JBLE – Langley is located in Tidewater Virginia's Hampton Roads region, in the city of Hampton, and occupies 2,883 acres of land (**Figures 1-1** and **1-2**). It was established as Langley Field in 1917 and has hosted a variety of missions and aircraft types throughout its history. JBLE – Langley is home to the 633 ABW, the 363rd Intelligence, Surveillance, and Reconnaissance Wing (363rd ISR Wing), 480th ISR Wing (480 ISR Wing), 1st Fighter Wing (1 FW), and 192nd Wing of the Virginia Air National Guard. The 1 FW comprises three fighter squadrons. The 27th Fighter Squadron (27 FS) and the 94th Fighter Squadron (94 FS) both fly the F-22 Raptor, and the 71st Fighter Training Squadron flies the T-38 Talon. The 27 FS and 94 FS provide air superiority for the United States (US) and allied forces, and they maintain readiness for global deployment as part of the 1 FW. Currently, F-22 Raptor, C-17, C-5, along with wide-body aircraft, frequent the airfield for cargo and personnel movements (Department of the Air Force [DAF] 2021a). Smaller transient aircraft (jet and propellor), as well as helicopters, also operate from JBLE – Langley (DAF 2021a). The airfield is served by one runway: Runway 08-26, which runs east-west (**Figure 1-3**).

The information presented in this document will serve as the basis for deciding whether the Proposed Action would result in a significant impact on the human or natural environment, requiring the preparation of an environmental impact statement (EIS), or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate. Execution of the Proposed Action would involve "construction" in a wetland as defined in EO 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management* as amended by EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, and a Finding of No Practicable Alternative (FONPA) has been prepared in conjunction with the FONSI.

1.2 PURPOSE OF THE ACTION

The purpose of the proposed shoulder construction for Runway 08-26 and its taxiways at JBLE – Langley is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. A recent evaluation of the runway's pavement surface revealed that 95 percent of its surfaces are in "Satisfactory to Good" condition. However, only approximately 15 percent of the airfield surface edges are abutted by shoulders, and the current shoulder geometry does not meet Department of Defense (DoD) requirements. This is in noncompliance with Unified Facilities Criterion (UFC) 3-260-01, *Airfield and Heliport Planning and Design* (May 2020). Further, JBLE – Langley is the only one of 56 continental United States (CONUS) air bases without a full complement of airfield shoulders.

Purpose of and Need for Action

Figure 1-1. Regional Location of Joint Base Langley-Eustis – Langley Air Force Base

Purpose of and Need for Action

Figure 1-2. Location of Joint Base Langley-Eustis – Langley Air Force Base and Surrounding Area

Figure 1-3. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield

1.3 NEED FOR THE ACTION

The need for the proposed shoulder construction for Runway 08-26 and its taxiways is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies (IFEs), or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

1.4 INTERAGENCY/INTERGOVERNMENTAL COORDINATION AND CONSULTATIONS

1.4.1 Interagency Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a proposed action. Per the requirements of the Intergovernmental Cooperation Act of 1968 (42 USC 4231(a)) and EO 12372, *Intergovernmental Review of Federal Programs,* Federal, state, and local agencies with jurisdictions that could be affected by the Proposed Action were notified during the development of this EA. **Appendix A** contains the list of agencies consulted during this analysis and has copies of correspondence.

1.4.2 Government to Government Consultations

Consistent with National Historic Preservation Act (NHPA) of 1966 implementing regulations (36 CFR Part 800), DoD Instruction (DoDI) 4710.02, *Interactions with Federally-Recognized Tribes*, Department of the Air Force Instruction 90-2002, *Air Force Interaction with Federally-Recognized Tribes*, and Department of the Air Force Manual (DAFMAN) 32-7003, *Environmental Conservation*, the DAF is also consulting with federally recognized tribes that are historically affiliated with the geographic region of each alternative site being considered for the Proposed Action regarding the potential to affect properties of cultural, historical, or religious significance to the tribes. The Native American tribal governments that were coordinated or consulted with regarding these actions are listed in **Appendix A**, and copies of correspondence are provided.

1.4.3 Other Agency Consultations

Per the requirements of Section 106 of the NHPA (54 USC 300101 and implementing regulations 36 CFR 800), Section 7 of the Endangered Species Act (ESA) (16 USC 1531–1544) and implementing regulations (50 CFR 402), the Migratory Bird Treaty Act (MBTA) (16 USC 703–712), Bald and Golden Eagle Protection Act (16 USC 668–668d), Coastal Zone Management Act (CZMA) (16 USC 1451–1464), and others as appropriate, findings of effect and requests for concurrence were transmitted to the Virginia State Historic Preservation Officer (SHPO), Virginia Department of Environmental Quality (VDEQ), and the US Fish and Wildlife Service (USFWS)/National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries).

Implementation of the Proposed Action involves coordination with several organizations and agencies. Compliance with Section 7 of the ESA and implementing regulations (50 CFR Part 402), requires communication with the USFWS and/or the NOAA Fisheries in cases where a Federal action could affect listed threatened or endangered species, species proposed for listing, or candidates for listing. The primary focus of this consultation is to request a determination of whether any of these species occur in the proposal area. If any of these species is present, a determination would be made of any potential adverse effects on the species. Should no species protected by the ESA be affected by the proposed or alternative actions, no additional consultation is required. Consultation was initiated using the USFWS' Information for Planning and Consultation (IPaC) online tool to generate an official species list pursuant to Section 7 of the ESA. Subsequently, the DAF received the USFWS Virginia Field Office's self-certification letter with a no effect determination on any federally listed species under the USFWS jurisdiction. Further, the DAF's *no effect* determination for ESA-listed species under National Oceanic and Atmospheric Administration (NOAA) Fisheries' jurisdiction does not require further consultation nor written concurrence per the NOAA Fisheries' procedure.

DAF has made a no effect determination for the federally listed sea turtles (green sea turtle [*Chelonia mydas*], Kemp's ridley sea turtle [*Lepidochelys kempii*], leatherback sea turtle [*Dermochelys coriacea*], and loggerhead sea turtle [*Caretta caretta*]), bat species (northern long-eared bat [*Myotis septentrionalis*], Indiana bat [*Myotis sodalis*], little brown bat [*Myotis lucifugus*], tricolored bat [*Perimyotis subflavus*], Rafinesque's eastern big-eared bat [*Corynorhinus rafinesquii macrotis*]), red knot (*Calidris canutus rufa*), roseate tern (*Sterna dougallii*), eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*), monarch butterfly (*Danaus plexippus*), West Indian manatee (*Trichechus manatus*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and rusty patched bumblebee (*Bombus affinis*). A Section 7 self-certification package was completed through the USFWS Virginia Ecological Services Field Office online project review process, and an effects determination was submitted to the NOAA Fisheries. Correspondence regarding the findings and concurrence and resolution of any adverse effect is included in **Appendix A,** *Early Public Notice and Agency and Tribal Correspondence.*

1.5 PUBLIC AND AGENCY REVIEW OF EA

Because the proposed action area coincides with wetlands and/or floodplains, it is subject to the requirements and objectives of EO 11990, *Protection of Wetlands,* and EO 11988, *Floodplain Management*. The DAF published an early notice that the Proposed Action would occur in a floodplain/wetland in the newspaper of record (listed below) on 22 and 23 April 2022. The notice identified state and Federal regulatory agencies with special expertise that had been contacted and solicited public comment on the Proposed Action and any practicable alternatives. The comment period for public and agency input on these projects ended 22 May 2022. One public comment was received during the early public comment period (**Appendix A**). Several agency comments were received, including those from the Department of Conservation and Recreation's Natural Heritage Locality Liaison, VDEQ, York County, US Army Corps of Engineers (USACE), Norfolk District Regulatory Office, Virginia Outdoors Foundation, and Virginia Department of Health, Office of Drinking Water (**Appendix A**).

A Notice of Availability (NOA) of the Draft EA and FONSI/FONPA was published in the newspaper of record (listed below), announcing the availability of the EA for review on 26 May 2023. The NOA invited the public to review and comment on the Draft EA. Copies of the Draft EA and FONSI/FONPA were also made available for review online at the JBLE – Langley public website at https://www.jble.af.mil/About-Us/Units/Langley-AFB/Langley-Environmental. The public and agency review period ends on 25 June 2023**.**

The early public notice of potential project execution in a floodplain/wetland and NOA of the Draft EA and FONSI/FONPA were published in *The Daily Press,* Newport News, Virginia.

1.6 DECISION TO BE MADE

The EA evaluates whether the Proposed Action would result in significant impacts on the human environment. If significant impacts are identified, JBLE – Langley would undertake mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the proposed action, or abandon the proposed action.

This EA is a planning and decision-making tool that will be used to guide JBLE – Langley in implementing the Proposed Action in a manner consistent with DAF standards for environmental stewardship.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

DAF and JBLE – Langley propose to construct asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways to satisfy the purpose of and need for the action described in **Sections 1.2** and **1.3.** UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. UFC 3-260-01 requires taxiways to have a paved shoulder width of 10 feet or greater and requires 25 feet or greater on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate, which is proposed based on UFC 3-260-2, *Pavement Design of Airfields,* and verified by utilizing the annual traffic loads (**Table 2-1**) as provided by the 1st Operations Support Squadron and 633rd Civil Engineer Squadron in the Pavement-Transportation Computer-Assisted Structural Engineering (PCASE) version 2.09.07 software (DAF 2021a).

Table 2-1. Joint Base Langley-Eustis – Langley Air Force Base Runway Traffic Data

Aircraft	Runway	Taxiways
C-5	Runway 08-26	Taxiways A, B, C, M, West Apron
C-17	Runway 08-26	Taxiways A, B, C, M, K, West Apron
C-130	Runway 08-26	Taxiways A, B, C, M, K, West Apron
KC-10	Runway 08-26	Taxiways A, B, C, D, M, West Apron
KC-135	Runway 08-26	Taxiways A, B, C, D, M, West Apron
F-22	Runway 08-26	Taxiways A, B, C, D, M, West Apron, East Apron
T-38	Runway 08-26	Taxiways A, B, C, D, M, West Apron, East Apron
B747	Runway 08-26	Taxiways J and H

Source: DAF 2021a

Field testing procedures would occur during construction to confirm compaction of subgrade soils meets the requirements of UFC 3-260-2, Table 6-7, *Compaction Requirements for Shoulders*. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled off the site and disposed of according to applicable Federal, state, and local regulations.

Under the proposed action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater management improvements are included in the Proposed Action to handle the increases in impervious surface area within the project area. Stormwater management would be completed in compliance with the Virginia Pollutant Discharge Elimination System (VPDES) Construction General Permit and would address changes in runoff volume and pollutant loading through implementation of a Stormwater Pollution Prevention Plan (SWPPP). This SWPPP would describe best management practices (BMPs) and erosion and sediment control measures. BMPs may include water quality swales and soil amendments for improved sheet flow from proposed shoulders.

2.2 SELECTION STANDARDS

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives for the proposed action. “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for

the proposed action. Per the requirements of 32 CFR 989, DAF EIAP regulations, selection standards are used to identify alternatives for meeting the purpose of and need for the proposed action.

In selecting alternatives for the construction of paved shoulders at Runway 08-26 and its various taxiways at JBLE – Langley, DAF used the following selection standards:

- The selected alternative will provide airfield shoulders for Runway 08-26 and all connecting taxiways to fulfill the compliance requirements outlined in UFC 3-260-01.
- The selected alternative will satisfy state (VDEQ stormwater requirements 9VAC25-870-66 and 9VAC25-870-63) and Federal Energy Independence and Security Act (EISA) stormwater requirements. The selected alternative will be designed such that permits and regulatory concurrence from the USACE and VDEQ may be readily obtained.
- The selected alternative will ensure Bird/Wildlife Aircraft Strike Hazard (BASH) requirements are supported.
- The selected alternative will minimize the disruption to JBLE – Langley's ongoing airfield operations and mission. It will be implemented in a timely fashion, without excessive delays (such as for land acquisition), and will avoid future foreseeable mission impacts.

2.3 SCREENING OF ALTERNATIVES

The following potential alternatives that could potentially meet the project's purpose and need were considered:

2.3.1 Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station

Alternative 1 would comply with the critical items outlined in the applicable UFC requirements and would construct asphalt shoulders per UFC standards and would leave existing slot drains adjacent to the Runway 08-26 in place. Further, in accordance with state and Federal stormwater requirements, Alternative 1 would construct flat-bottom swales on each side of the runway and install wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course pond. The alternative would also support BASH requirements, avoid damaging the existing runway and taxiway edge lighting, and be phased in a manner that does not disrupt JBLE – Langley's ongoing airfield operations and mission.

2.3.2 Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration

Alternative 2 would comply with the critical items outlined in the applicable UFC requirements and would include removing and replacing all existing runway and taxiway lighting, installing slot drains, and constructing underground stormwater detention areas on the airfield infield in accordance with state and Federal stormwater requirements. This alternative would meet paved shoulder widths for the entire airfield and would meet unpaved shoulder widths and grading requirements at strategic locations. Alternative 2 would support BASH requirements. Since widening would only occur at strategic locations, this alternative could be phased in a manner that would not disrupt JBLE – Langley's ongoing airfield operations and mission. Alternative 2 would remove and replace all existing runway and taxiway lighting.

2.3.3 Alternative 3: Full Criteria Compliance

Alternative 3 would provide all paved and unpaved shoulder widths as outlined in UFC 3-260-01, which would include removing and replacing all existing runway and taxiway lighting, installing underground stormwater detention areas on the airfield infield, and installing backflow prevention in accordance with state and Federal stormwater requirements. This alternative would support BASH requirements.

Alternative 3 would remove and replace all existing runway and taxiway lighting. Implementation of this alternative would disrupt JBLE – Langley's ongoing airfield operations and mission.

2.3.4 Alternative 4: Partial Criteria Compliance

Alternative 4 would partially comply with applicable UFC requirements and would avoid damaging all existing runway and taxiway lighting. In accordance with state and Federal stormwater requirements, this alternative would convert existing swales on the airfield infield to water quality swales, developing a meadow area north of the airfield. Alternative 4 would meet paved shoulder width and unpaved shoulder width requirements at strategic locations. Since shoulder widening would only occur at strategic locations, this alternative could be phased in a manner that would not disrupt JBLE – Langley ongoing airfield operations and mission. However, the proposed meadow that would be developed to the north of the airfield under this alternative would not be feasible due to BASH concerns.

2.3.5 Selection Standards

The selection standards described in **Section 2.2** were applied to these alternatives (**Table 2-2**) to determine which alternative(s) could serve the purpose of and need for the action.

Alternative 1 would comply with the critical items outlined in the applicable UFC requirements, address stormwater and environmental concerns, minimize impacts on existing utilities, meet JBLE – Langley's BASH requirements, and be phased in a manner that does not disrupt JBLE – Langley's ongoing airfield operations and mission. Alternative 1 meets or partially meets all the selection standards.

Alternative 2 would comply with the critical items outlined in the applicable UFC requirements, address stormwater and environmental concerns, minimize impacts on existing utilities, meet JBLE – Langley's BASH requirements, and be phased in a manner that does not disrupt JBLE – Langley's ongoing airfield operations and mission. Alternative 2 would remove and replace all existing runway and taxiway lighting. Alternative 2 meets or partially meets all the selection standards.

Alternative 3 would involve a very large area of earthwork to bring the airfield into full compliance with UFC 3-260-01 and would remove and replace all existing runway and taxiway lighting. Therefore, this would require a much longer implementation period when compared to other alternatives. Implementation of this alternative would also disrupt JBLE – Langley's ongoing airfield operations and mission, as the large volume and area of earthwork could not be phased to avoid those impacts. Because Alternative 3 would disrupt JBLE – Langley's airfield operations and mission and could not be implemented in a timely fashion, it does not meet all the selection standards.

Alternative 4 would develop a proposed meadow to the north of the airfield; however, a meadow would not be feasible due to BASH concerns, as this meadow would attract wildlife that would be inconsistent with JBLE – Langley's BASH Plan and airfield management requirements. Because Alternative 4 would not meet JBLE – Langley's BASH requirements, it does not meet all the selection standards.

2.4 DESCRIPTIONS OF THE ALTERNATIVES CONSIDERED FOR DETAILED ANALYSIS

NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to the proposed action. "Reasonable alternatives" are those that meet the purpose of and need for the proposed action, satisfy the criteria in the selection standards, and are carried forward for detailed analysis in the EA.

Two alternatives to implement the Proposed Action that did not meet all of the selection standards and are not carried forward. However, two of the four alternatives for implementing the Proposed Action met or partially met all of the selection standards and are carried forward in this EA for further evaluation.

Table 2-2. Alternatives Considered Compared to Selection Standards

Selection Standards	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	Alternative 3: Full Criteria Compliance	Alternative 4: Partial Criteria Compliance
The selected alternative will provide airfield shoulders for Runway 08-26 and all connecting taxiways to fulfill the compliance requirements outlined in UFC 3-260-01.	Partially	Partially	Yes	Partially
The selected alternative will satisfy state (VDEQ stormwater requirements 9VAC25-870-66 and 9VAC25-870-63) and Federal EISA stormwater requirements. The selected alternative will be designed such that permits and regulatory concurrence from the USACE and VDEQ may be readily obtained.	Yes	Yes	Yes	No
The selected alternative will ensure BASH requirements are supported.	Yes	Yes	Yes	No
The selected alternative will minimize the disruption to JBLE – Langley ongoing airfield operations and mission. It will be implemented in a timely fashion, without excessive delays (such as for land acquisition) and will avoid future foreseeable mission impacts.	Yes	Yes	No	Yes

UFC – Unified Facilities Criterion/Criteria; **VDEQ** – Virginia Department of Environmental Quality; **EISA** – Energy Independence and Security Act; **USACE** – US Army Corps of Engineers; **BASH** – Bird/Wildlife Aircraft Strike Hazard; **JBLE – Langley** – Joint Base Langley-Eustis – Langley Air Force Base

The Proposed Action satisfies applicable DAF, DoD, state and/or Federal requirements and supports current and future mission requirements. The NEPA process is intended to support flexible, informed decision making; the analysis provided by this EA and feedback from the public and other agencies will inform decisions made about whether, when, and how to execute the proposed action. Among the alternatives evaluated is a No Action Alternative. The No Action Alternative will substantively analyze the consequences of not undertaking the proposed action, not simply concluding it will have no impact, and will serve to establish a comparative baseline for analysis.

Alternative 1: Preferred Alternative and Alternative 2: Primary Criteria Compliance were found to meet the purpose of and need for the action and to satisfy the selection standards. These two action alternatives, and the No Action Alternative, are carried forward for detailed analysis. Alternatives considered but eliminated from further consideration are discussed in **Section 2.5**.

2.4.1 Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station

Under Alternative 1, JBLE – Langley would construct 25-foot-wide paved shoulders on Taxiways A, B, C, D, E, F, west and east H, K, North Ramp, and Runway 08-26 (**Figure 2-1**). Alternative 1 also includes 25-foot combined paved and unpaved shoulders for Runway 08-26 and 25-foot combined paved and unpaved shoulders for all taxiways (**Figure 2-1**). Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Alternative 1 would result in approximately 30.17 acres of impervious surfaces.

Existing slot drains within the proposed shoulder areas would remain. Alternative 1 would also include construction of flat-bottom swales on each side of the runway and installation of wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course pond (**Figure 2-1**). An existing drainage pumphouse to the southeast would be further utilized by redirecting stormwater flow from more southern drainage areas to be served by the pumphouse (**Figure 2-1**). All existing lighting on Runway 08-26 would be protected.

Under Alternative 1, the airfield would be divided into 15 proposed construction work areas defined below and presented in **Figure 2-2**:

1. Runway 08-26 – South
2. Runway 08-26 – Center
3. Runway 08-26 – North
4. Taxiway A – South
5. Taxiways H and K
6. Taxiways E and F
7. Taxiway A at Runway 26 End
8. Taxiway A at Brownie Pad
9. Taxiway D
10. Taxiway A East Apron
11. Taxiways A at Taxiway B and C
12. Taxiway A West Apron
13. Taxiway A at Taxiway M
14. Taxiway M
15. North Ramp

The proposed work areas have been delineated based on aircraft operational efficiency and use of each facility across the airfield. Proposed Construction Work Areas 1 through 3, which include the Runway 08-26 shoulders and portions of connector taxiway shoulders within the runway safety area (**Figure 2-2**), would occur at night to allow for aircraft operations to continue uninterrupted during the day. Phased, displaced thresholds at both ends of the runway would potentially allow for more flexibility for Proposed Construction Work Areas 1 and 3 to be closed for construction during the day. Construction work on the runway shoulders is projected to occur over two calendar years.

Proposed Construction Work Areas 4 through 15, which include Taxiways A, B, C, D, E, F, H, K, M, and the North Ramp shoulders (**Figure 2-2**), would occur either during the day or night depending on their critical location and frequency of use. Access to active facilities would remain clear throughout construction of the proposed action. Construction work on these taxiways is projected to occur over two calendar years. The proposed construction schedule would allow the runway and taxiway work to be concurrent with the runway work area closures linking to the adjacent taxiway closures. Phasing would be further refined during the design phase of the project. The proposed laydown area during airfield shoulder

Proposed Action and Alternatives

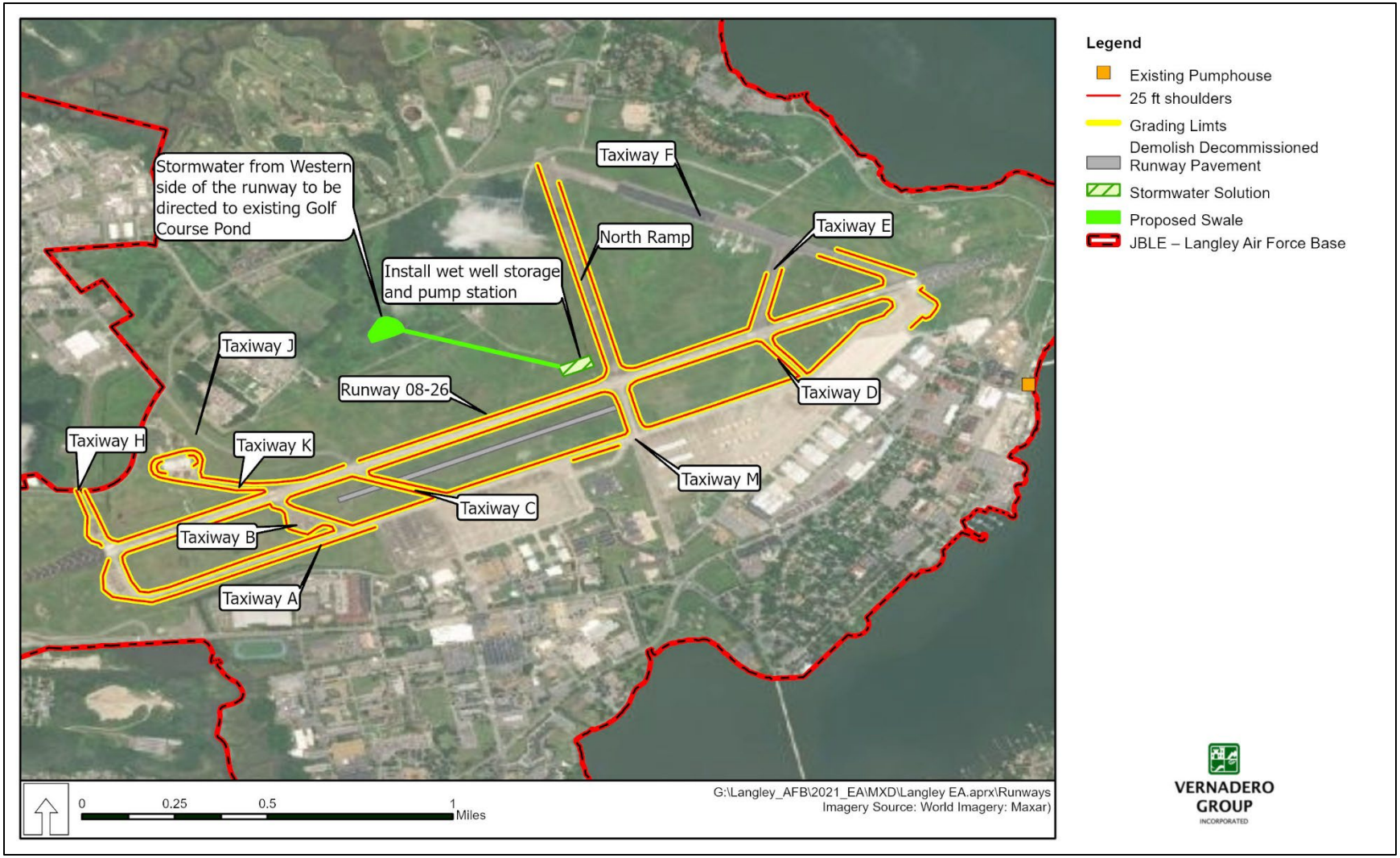

Figure 2-1. Alternative 1 for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base

Proposed Action and Alternatives

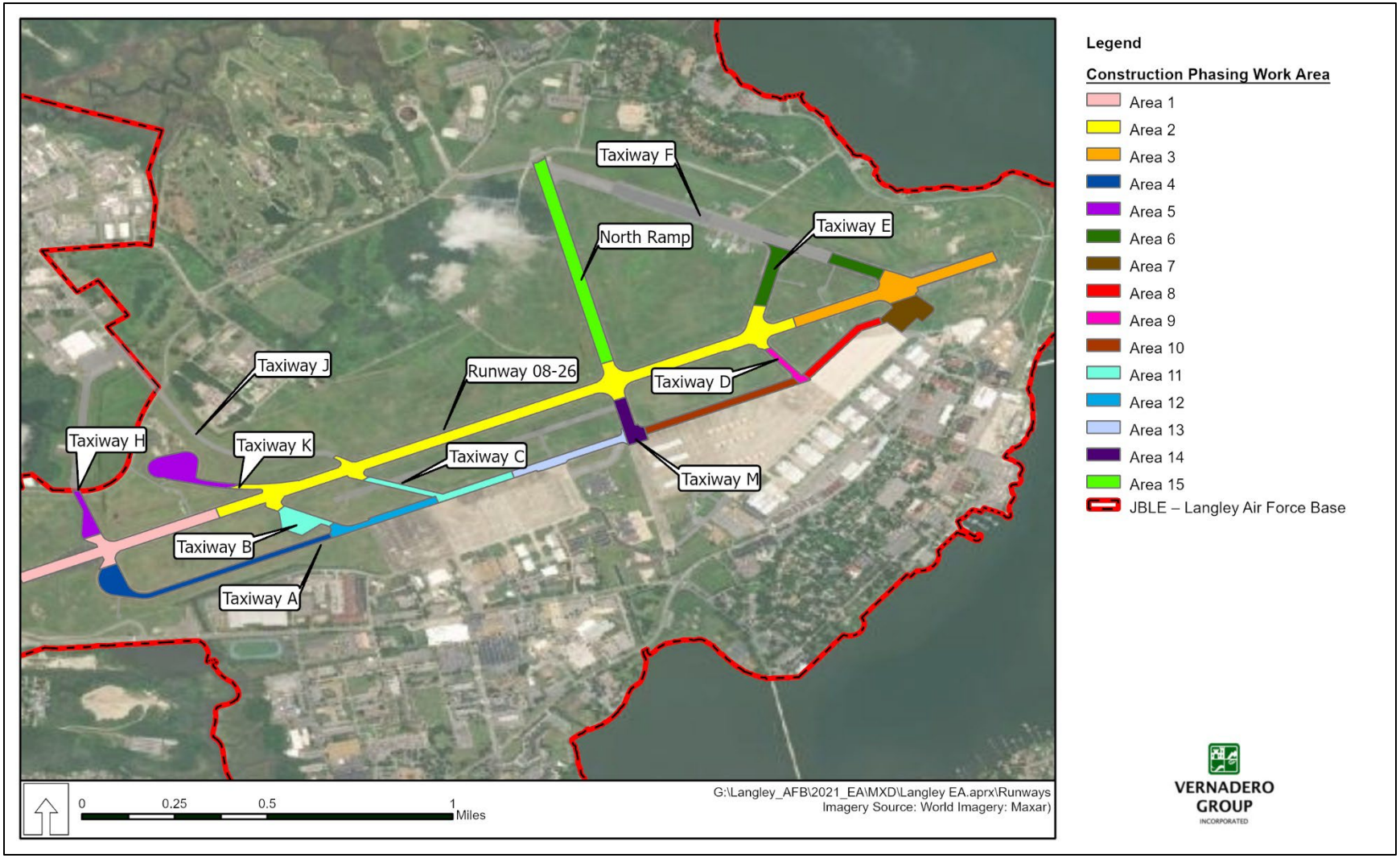

Figure 2-2. Alternative 1 Proposed Phasing for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base

construction would be located in the existing laydown area west of the North Ramp (see **Figure 2-2**), accessible by Weyland Road.

2.4.2 Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration

Under Alternative 2, JBLE – Langley would construct 10-foot-wide paved shoulders on Taxiways E and F and the North Ramp; 25-foot-wide paved shoulders on Taxiways B, D, K, and M and Runway 08-26; and 50-foot-wide paved shoulders on Taxiway A, west H, and east H (**Figure 2-3**). Existing shoulder pavement across the airfield would be protected, and new shoulders would be installed on all taxiways and the runway (**Figure 2-3**). The existing decommissioned pavement south of Runway 08-26 would be demolished (**Figure 2-3**). The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Existing slot drains within the proposed shoulder areas would be removed, and new slot drains would be installed. Alternative 2 would also include two areas of proposed underground filtration for water quality (**Figure 2-3**). Existing lighting on Runway 08-26 would be demolished and replaced. Alternative 2 would result in approximately 36.27 acres of impervious surfaces.

Under Alternative 2, the airfield would be divided into the 15 proposed construction work areas discussed in **Section 2.4.1** and presented in **Figure 2-2**.

2.4.3 No Action Alternative

Under the No Action Alternative, the proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not proceed. Under this alternative, Runway 08-26 would continue to be noncompliant with UFC 3-260-01, making JBLE – Langley the only CONUS air base without a full complement of airfield shoulders. There would continue to be no off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The risk of foreign object debris (FOD) damage would remain elevated due to vehicle traffic use of the runway and taxiway surfaces. Wide-body aircraft with engine locations wider than the existing paved surfaces would continue to have the potential to generate FOD on active surfaces. Vehicle traffic, including Fire and Emergency Response, Aircraft Arresting System maintenance, airfield lighting maintenance, and Navigational Aids service vehicles would continue driving on the runway and taxiway surfaces. The existing airfield edge lights would remain outside the paved surface and exposed to potential damage from grounds maintenance operations. Snow removal operations would continue to create tall windrows along active pavements, potentially impacting wide-body aircraft operations during heavy snow events, and all existing airfield compliance waivers based on pavement geometry would have to remain in place.

The No Action Alternative cannot be considered to be reasonable as it fails to address the purpose of and need for the action as described in Chapter 1. However, it is carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the Proposed Action and alternatives can be assessed.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The following alternatives have been eliminated from further consideration on the basis of the results of screening presented in **Section 2.3** (see **Table 2-2**).

2.5.1 Alternative 3: Full Criteria Compliance

Under Alternative 3, JBLE – Langley would demolish existing shoulder pavement across the airfield and install new shoulders on Runway 08-26 and all taxiways. Alternative 3 would include construction of 10-foot-wide paved shoulders on Taxiways E and F and the North Ramp; 25-foot-wide paved shoulders on Taxiways B, C, D, J, K, and M and Runway 08-26; and 50-foot-wide paved shoulders on Taxiway A,

Proposed Action and Alternatives

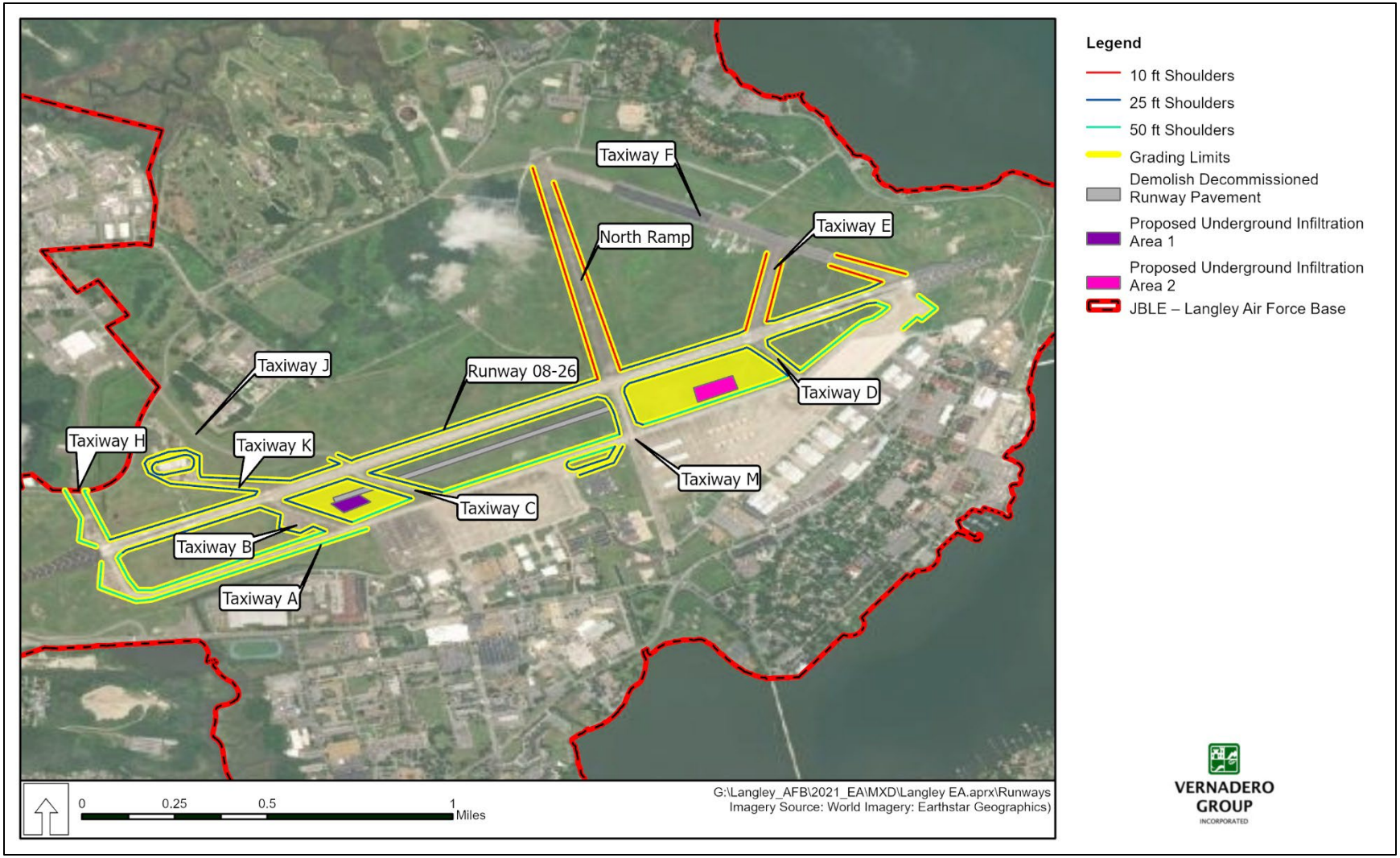

Figure 2-3. Alternative 2 for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base

west H, and east H (**Figure 2-4**). Existing decommissioned pavement south of Runway 08-26 would be demolished (**Figure 2-4**). All existing slot drains and lighting would be demolished and replaced. Alternative 3 would include standardized grading for daylight and stormwater requirements, in addition to installation of two underground stormwater detention areas (**Figure 2-4**). Through coordination with the Greater Hampton Roads Area Stormwater Plan, backflow prevention systems would be installed at two outfall locations (**Figure 2-4**). Due to the large area of earthwork required under Alternative 3 to bring the airfield into full compliance with UFC 3-260-01 and because all existing runway and taxiway lighting would be removed and replaced, it was determined that this alternative could not be implemented in a timely manner when compared to other potential alternatives. Further, implementation of Alternative 3 would not be phased and would disrupt JBLE – Langley's ongoing airfield operations and mission for the duration of construction, which is projected to last up to two calendar years. For these reasons, Alternative 3 was eliminated from further consideration in this EA.

2.5.2 Alternative 4: Partial Criteria Compliance

Under Alternative 4, JBLE – Langley would construct 10-foot-wide paved shoulders on Taxiways E and F and the North Ramp; 25-foot-wide paved shoulders on a portion of Taxiway A and Taxiways B, C, D, J, K, and M and Runway 08-26; and 50-foot-wide paved shoulders on Taxiway west H and east H (**Figure 2-5**). Existing decommissioned pavement south of Runway 08-26 would be demolished (**Figure 2-5**). All existing lighting would be protected in place. Alternative 4 would convert existing swales throughout the airfield to water quality swales (**Figure 2-5**). Under Alternative 4, a proposed meadow would be developed north of the airfield (**Figure 2-5**); however, a meadow would not be feasible as it does not meet JBLE – Langley's BASH requirements; therefore, this alternative was eliminated from further consideration in this EA.

2.6 SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES

The potential impacts associated with the Alternative 1, Alternative 2, and the No Action Alternative are summarized in **Table 2-3.** The summary is based on information discussed in detail in **Section 3.0,** *Affected Environment and Environmental Consequences,* of the EA, which includes a concise definition of the issues addressed and the potential environmental impacts associated with each alternative.

Proposed Action and Alternatives

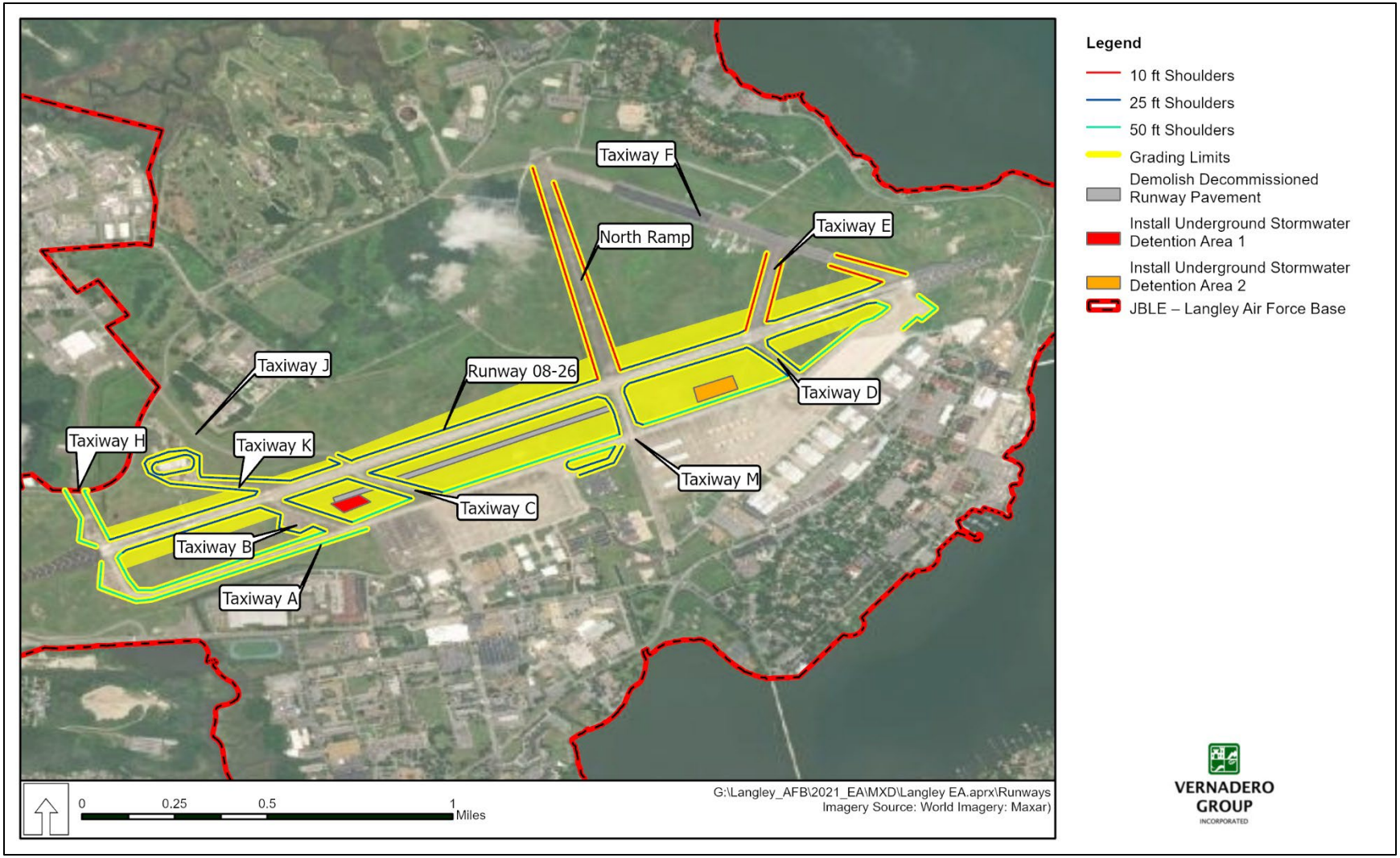

Figure 2-4. Alternative 3 for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base

Proposed Action and Alternatives

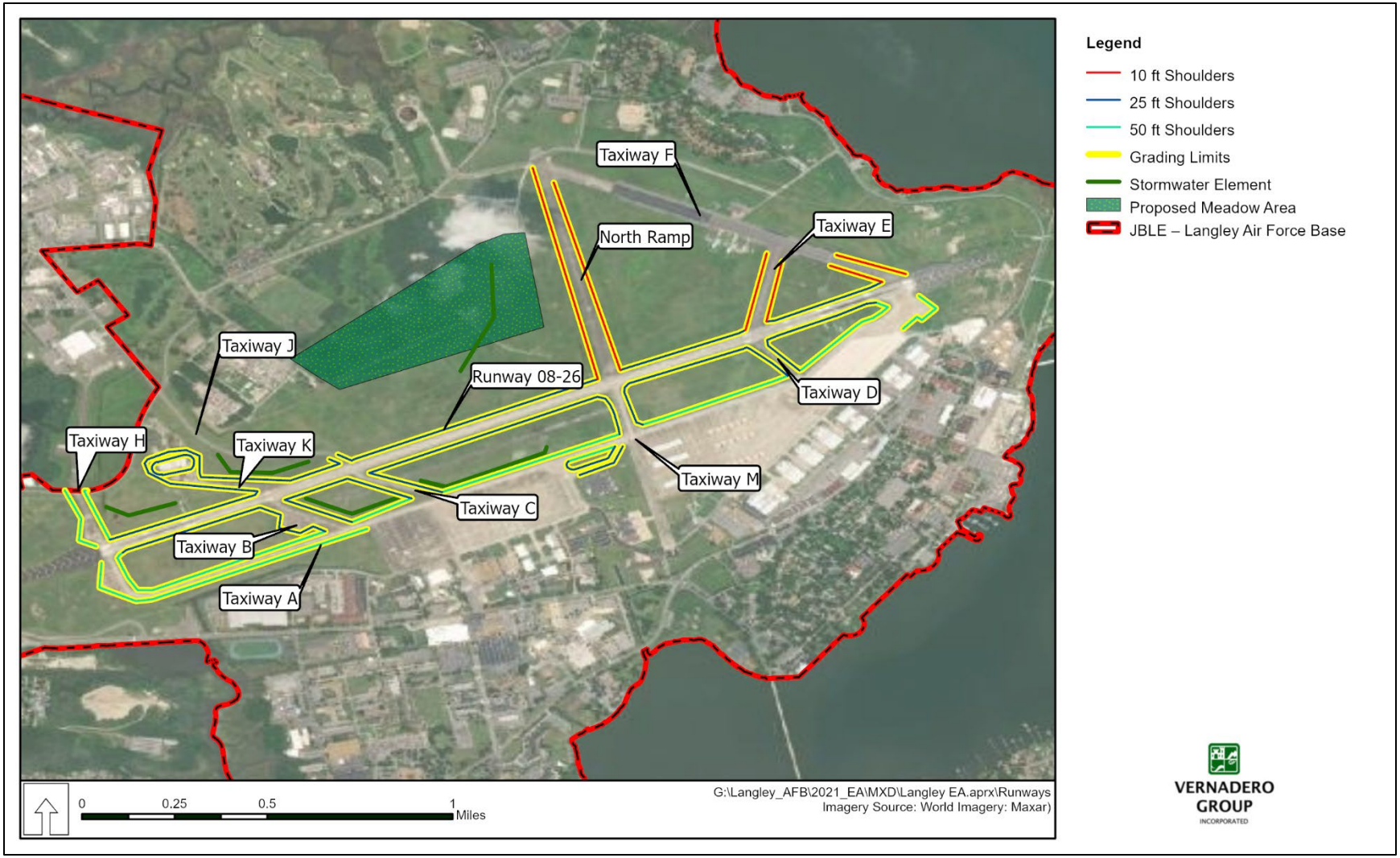

Figure 2-5. Alternative 4 for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base

1 **Table 2-3. Summary of Environmental Consequences**

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Noise	Short-term, minor, adverse effects on the noise environment are expected. Short-term increases in noise would be caused by construction activities. All Alternative 1 proposed actions would be within the 85 dBA DNL contour. Alternative 1 would not create appreciable long-term increases in areas of incompatible land use due to noise and would not lead to a violation of any Federal, state, or local noise regulation. Following the completion of construction, noise levels proximate to the runway would be similar to current airfield noise levels. There are no sensitive noise receptors proximate to the Alternative 1 proposed construction locations.	Short-term, minor, adverse effects on the noise environment are expected. Short-term increases in noise would be caused by construction activities. All Alternative 2 proposed actions would be within the 85 dBA DNL contour. Alternative 2 would not create appreciable long-term increases in areas of incompatible land use due to noise and would not lead to a violation of any Federal, state, or local noise regulation. Following the completion of construction, noise levels proximate to the runway would be similar to current airfield noise levels. There are no sensitive noise receptors proximate to the Alternative 2 proposed construction locations.	No adverse effects on the noise environment would be expected under the No Action Alternative. The overall noise environment would remain unchanged when compared to existing conditions.
Health and Safety	There would be no adverse or significant, short- or long-term impacts on the safety of the JBLE – Langley community and contractor support associated with implementation of the Proposed Action. Improvements to Runway 08-26 and taxiways would generally enhance safety during all uses of the runway and taxiways by members of the JBLE – Langley community and installation partners. Alternative 1 divides the airfield into 15 construction work areas. Work within the first three construction work areas would occur at night, reducing possible sources of conflict with airfield operations. Remaining projects would occur either during the day or night depending on their critical location and frequency of use. All construction activities would be coordinated to reduce the potential for adverse effects. The proposed construction schedule would allow the runway and taxiway work to be concurrent with the runway work area closures linking to the adjacent taxiway closures.	There would be no adverse or significant, short -or long-term impacts on the safety of the JBLE – Langley community and contractor support associated with implementation of the Proposed Action. Improvements to Runway 08-26 and taxiways would generally enhance safety during all uses of the runway and taxiways by members of the JBLE – Langley community and installation partners. Alternative 2 divides the airfield into the same 15 construction work areas as Alternative 1. All construction activities and appropriate safety measures would be coordinated to ensure reduce safety hazards and conflict with airfield operations. Alternative 2 would provide long-term, minor, beneficial impacts on health and safety, as there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies.	Short- and long-term adverse impacts could be expected; however, the impacts would be less than significant as JBLE – Langley would continue to manage conditions to prevent and/or minimize impacts and safety and occupational health to the extent practicable. The proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not proceed. Runway 08-26 would continue to be noncompliant with UFC 3-260-01, making JBLE – Langley the only CONUS air base without a full

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Health and Safety (continued)	Alternative 1 would provide long-term, minor, beneficial impacts on health and safety, as there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The proposed stormwater management actions would remove standing water on the airfield and could reduce BASH risk, thereby further improving safety for pilots. .		complement of airfield shoulders. There would continue to be no off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The risk of FOD damage would remain elevated due to vehicle traffic use of the runway and taxiway surfaces. Wide-body aircraft with engine locations wider than the existing paved surfaces would continue to have the potential to generate FOD on active surfaces. Vehicle traffic, including Fire and Emergency Response, Aircraft Arresting System maintenance, airfield lighting maintenance, and Navigational Aids service vehicles would continue driving on the runway and taxiway surfaces.
Air Quality and Climate Change	Impacts on air quality under Alternative 1 would be minor as criteria pollutant emissions from construction activities would be intermittent and short term, not lasting more than a few days. The primary source of air emissions would be from activities associated with construction and earth disturbance, which would be temporary. It is anticipated that suitable fugitive dust control measures would be employed during construction activities to mitigate fine particulate emissions. Long-term impacts would be negligible. Emissions from all other remaining criteria pollutants are well below their	Alternative 2 would generate air emissions similar to those described for Alternative 1. However, Alternative 2 does not include any new, permanent air emissions source proposed for implementation; therefore, there would be no long-term emissions from operational activities.	The No Action Alternative would not have an impact on air quality. There would be no concerns regarding the adverse air quality effects that would have occurred from vehicular operations of construction equipment and vehicles or fugitive dust from earth disturbance activities.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Air Quality and Climate Change (continued)	relevant insignificance indicator emission levels. Further, it is anticipated that all relevant Federal and state regulations, including any requirements to obtain a permit, would be followed to limit impacts on air quality. JBLE – Langley would comply with applicable VDEQ air regulations, including those for control of visible emissions and fugitive dust emissions (9 VAC 5-50-60 et seq.), open burning (9 VAC 5-130-10 et seq.) and permits for fuel-burning equipment (9 VA C 5-80-1100 et seq.), such as the emergency generator. Other than the backup diesel generator for the pump station, no new stationary source of air emissions is expected to be constructed or stationed permanently at JBLE – Langley for the proposed implementation of Alternative 1. The backup emergency generator would most likely not require a permit for construction; however, it will need to be added to the current permit to be included in the basewide PTE emissions. Specifics will be needed to determine complete permitting actions. Overall, emissions from Alternative 1 are not expected to adversely affect the region's attainment status with the NAAQS.		
Earth Resources	Alternative 1 would not be expected to result in short- or long-term adverse effects on geology or topography. Any excavation would be relatively shallow and would not involve the penetration or disturbance of underlying geologic strata, would not disturb or impact unique or noteworthy geologic features underlying JBLE – Langley, and would not alter the overall terrain and contours of the flightline, an area that has been extensively graded. Construction would result in the alteration of soil layer structure and soil compaction and would expose soils to erosion from wind and water. Adherence to the SWPPP and applicable BMPs would minimize impacts on soils. Soils disturbed during construction would either be developed per BMPs or	Impacts on earth resources would be the same as those described for the Alternative 1; effects on soil structure, compaction, erosion potential, and overall disturbance would be similar to those described in Alternative 1. Mitigation techniques described in Alternative 1 would be applied in Alternative 2 as well.	Under the No Action Alternative, there would be no impact on geology, topography, or soils as no grading or other disturbance would occur.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Earth Resources (continued)	restored to a vegetated or otherwise permeable condition, preventing or minimizing the potential for ongoing erosion. In addition to implementation of a SWPPP, DAF may implement project-specific BMPs or purchase nutrient credits, as applicable, to meet stormwater management requirements. Additionally, implementation of Alternative 1 would be phased so not all soil disturbance would occur simultaneously, further minimizing impacts.		
Floodplains	Alternative 1 would occur within the 100-year floodplain and a few isolated areas of the 500-year floodplain. However, there would be no significant adverse effects on the floodplain because the runway and taxiway improvements would not modify floodplain hazard conditions or violate any floodplain laws or regulations.	Alternative 2 would occur within the 100-year floodplain and a few isolated areas of the 500-year floodplain. However, there would be no significant adverse effects on the floodplain because the runway and taxiway improvements would not modify floodplain hazard conditions or violate any floodplain laws or regulations.	Under the No Action Alternative, shoulder and taxiway construction for Runway 08-26 would not occur, and there would be no effect on floodplains.
Coastal Zone Management	Alternative 1 is consistent with the enforceable policies of the Virginia CZMP to the maximum extent practicable.	Alternative 2 is consistent with the enforceable policies of the Virginia CZMP to the maximum extent practicable.	Under the No Action Alternative, shoulder and taxiway construction for Runway 08-26 would not occur, and there would be no impact on coastal zone management.
Water Resources	Under Alternative 1, an estimated 11.27 acres of grass and gravel would be converted to impervious asphalt, which could increase stormwater flow and erosion potential and decrease infiltration rates for groundwater recharge. All stormwater management would be in accordance with state regulations and the Federal Energy Independence and Security Act, and the implementation of a SWPPP. This SWPPP would describe BMPs and erosion and sediment control measures.	Under Alternative 2, adverse effects on water resources would be similar to, but slightly more than, those described for Alternative 1 because Alternative 2 would increase the amount of impervious surface created along the taxiways and runway compared to Alternative 1. Alternative 2 would result in the construction of 10-, 25-, and 50-foot-wide paved shoulders on various sections of runway and taxiway. Stormwater management practices include removal of existing slot drains and installation of new slot drains, and installing	Under the No Action Alternative, the proposed construction of taxiways and shoulders for Runway 08-26 at JBLE – Langley would not proceed. Stormwater control structures would remain in poor condition and continue to deteriorate. FOD potential could increase, further reducing flight safety.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Water Resources (continued)	Removal of all surface water features and wetlands within the airfield has been permitted by the USACE under permit # NAO-2017-00574/VMRC# 17-V0458, with a timeline of completion ending 21 June 2028. All work in the wetlands would be conducted in accordance with the permit that was obtained for a previously examined airfield drainage project, including all terms and conditions, which include compensatory mitigation to ensure impacts are below the level of significance. Alternative 1 would be implemented in conjunction with or after the Phases 2 and 3 of the previously examined airfield drainage project. Included in that previous project is the filling of airfield wetlands that might be impacted by Alternative 1; mitigation for that project includes the purchase of wetland credits. Short-term, minor, adverse impacts on stormwater drainage and ground water could occur from an increase in impervious surface. There would be negligible long-term adverse impacts on surface water and stormwater management from increased runoff. Long-term beneficial impacts would result from improved stormwater management structures.	two areas of underground filtration for water quality. Removal of all surface water features and wetlands within the airfield associated with Alternative 2 has been permitted and mitigated as described in Alternative 1. Alternative 2 would be implemented in conjunction with or after Phases 2 and 3 of the previously examined airfield drainage project.	
Biological Resources	Impacted areas would be limited to within 25 feet of existing runway and taxiway shoulder pavement, the flat-bottom swales, and the wet well storage and pump station would be impacted. Habitat within and adjacent to the proposed construction areas is limited to managed lawns, runway surfaces, decommissioned pavement, and man-made drainage ditches. An estimated 11.27 acres of turf grass adjacent to runway pavement would be removed; no adverse impacts on native vegetation are expected to occur. Short-term, indirect, minor adverse impacts on some fauna may occur. Construction projects may affect breeding songbirds utilizing urban greenspaces adjacent to proposed construction. Ground disturbance may impact	Impacts on biological resources would be similar to those described for Alternative 1. Taxiways A and H would have 50-foot shoulders added to them, and the North Ramp, Taxiway E, and a small portion of Taxiway F would only be impacted by a 10-foot shoulder. Further, Taxiways B, C, D, K, M, and Runway 08-26 would be impacted by the same 25-foot shoulder as Alternative 1.	Biological resources would not be adversely affected under the No Action Alternative.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Biological Resources (continued)	invasive plants, potentially facilitating opportunities for expansion. All construction projects would implement BMPs to reduce the spread of invasive species. DAF has made a no effect determination for the federally listed sea turtles (green sea turtle [*Chelonia mydas*], Kemp's ridley sea turtle [*Lepidochelys kempii*], leatherback sea turtle [*Dermochelys coriacea*], and loggerhead sea turtle [*Caretta caretta*]), bat species (northern long-eared bat [*Myotis septentrionalis*], Indiana bat [*Myotis sodalis*], little brown bat [*Myotis lucifugus*], tricolored bat [*Perimyotis subflavus*], Rafinesque's eastern big-eared bat [*Corynorhinus rafinesquii macrotis*]), red knot (*Calidris canutus rufa*), roseate tern (*Sterna dougallii*), eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*), monarch butterfly (*Danaus plexippus*), West Indian manatee (*Trichechus manatus*), shortnose sturgeon *(Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and rusty patched bumblebee (*Bombus affinis*). A Section 7 self-certification package was completed through the USFWS Virginia Ecological Services Field Office online project review process.		
Cultural Resources	The flightline has been extensively graded and developed over the 100+ year history of JBLE – Langley. Recent excavations in the grassy area between the North Ramp and nearby taxiways have confirmed that while subsurface cultural material may exist, it lacks all integrity and research value being recovered from disturbed, secondary, fill contexts. No traditional cultural properties or sacred sites have been identified within the APE. Implementation of Alternative 1 would not result in adverse effects on significant architectural resources within the Langley Field Historic District, namely Runway 08-26, the North Ramp, and several associated taxiways. While these pavements are considered eligible and contributing resources to the Langley Field Historic District, proposed improvements to modernize would not	Impacts on cultural resources under Alternative 2 would be the same as those described for Alternative 1. No traditional or sacred sites have been identified within the APE. Implementation of Alternative 2 would not result in adverse effects on architectural resources within the Langley Field Historic District. Coordination with the Virginia SHPO was initiated during preparation of this EA.	Under the No Action Alternative, the proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not occur at this time. There would be no impact to cultural resources as no grading or other disturbance would occur.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Cultural Resources (continued)	diminish the look, feel, design, or overall integrity of these resources, or their ability to convey their significance. Therefore, per 36 CFR Part 800800.5, implementation of Alternative 1 would result in no adverse effect on historic properties. Coordination with the Virginia SHPO was initiated during preparation of this EA.		
Socioeconomic Resources	Minor beneficial impacts on socioeconomics would be expected in the region with expenditures on materials and labor during construction. No change in personnel, housing demand, or economic conditions at JBLE – Langley would be anticipated as a result of the Proposed Action.	Impacts on socioeconomic resources under Alternative 2 would be the same as those described for Alternative 1.	No adverse effects on the socioeconomics would be expected under the No Action Alternative, as there would be no change in personnel, housing demand, or economic conditions at JBLE - Langley.
Environmental Justice and Protection of Children	No effects on minority or low-income populations, children, or the elderly are expected. The proposed construction and operation of taxiways would not result in disproportionate adverse environmental or health effects on the low-income or minority populations in the ROI. There are no residential areas or facilities where children typically are present (e.g., schools, daycare centers, or playgrounds) near the other proposed action sites at the airfield.	Impacts on Environmental Justice and Protection of Children under Alternative 2 would be the same as those described for Alternative 1.	No effects on minority or low-income populations, children, or the elderly would occur. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, and it is not an action with the potential to substantially affect populations covered by EO 12898 or EO 13045 by excluding anyone, denying anyone benefits, or subjecting anyone to discrimination or disproportionate environmental or human health risks.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Infrastructure and Utilities	Short-term, minor adverse effects on utilities would be expected. All existing primary electrical, communication, gas, fuel, water, and sanitary lines would be protected in place to the maximum extent possible. Any adjustments to these lines would be evaluated during the future design efforts and based on required grading and improvements. Detailed subsurface utility engineering would be required prior to execution of the full design effort. For any proposed construction close to known utility lines, hand digging would be required. During construction, all existing underground utilities and their associated appurtenances within the shoulder footprint would be protected, removed, or relocated as necessary, and any resulting excavations would be properly backfilled and compacted. Underground utilities impacted could include existing drainpipes, fuel lines, power junctions and conduit, telecommunication cables, and runway light bases. In particular, the runway edge light system would be impacted. Confirmation of utilities locations would be the responsibility of project contractors who would closely coordinate with JBLE – Langley's utility representatives to determine the presence and location of impacted utilities. Upon completion of the proposed actions, impacts on utilities would cease.	Implementation of Alternative 2 would result in the same short-term, minor, impacts on utilities as Alternative 1. All existing primary electrical, communication, gas, fuel, water, and sanitary lines would be protected in place to the maximum extent possible under Alternative 1. Any adjustments to these lines would be evaluated during the future design efforts and based on required grading and improvements. Current GIS information exists for general location of underground utilities across the airfield (see **Figure 3-6**), excluding depth, and detailed subsurface utility engineering would be required prior to execution of the full design effort. For any proposed construction close to known utility lines, hand digging would be required. During construction, all existing underground utilities and their associated appurtenances within the shoulder footprint would be protected, removed, or relocated as necessary, and any resulting excavations would be properly backfilled and compacted. Underground utilities impacted could include, but are not limited to, existing drainpipes, fuel lines, power junctions and conduit, telecommunication cables, and runway light bases. In particular, the runway edge light system would be impacted. Confirmation of utilities locations would be the responsibility of project contractors who would closely coordinate with JBLE – Langley's utility representatives in order to determine the presence and location of impacted utilities. Upon completion of the proposed construction activities, impacts on utilities would cease.	No adverse effects on utilities would be expected under the No Action Alternative. Existing utilities located along the runway and taxiways at JBLE – Langley would remain unchanged compared to existing conditions.
Transportation	Short-term, minor, adverse effects on the transportation system would be expected. All construction vehicles would access the installation via Armistead Avenue and the West Gate. Local roads generally have low traffic volume and incidents of congestion; however, heavy	Implementation of Alternative 2 would result in the same short-term, minor, impacts on transportation as Alternative 1. All construction vehicles would access the installation via Armistead Avenue and the West Gate. Local roads generally have low	No adverse effects on the regional or local transportation system or routes would be expected

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Transportation (continued)	volume and traffic congestion occurs during the morning and evening rush hours on weekdays, particularly at the West Gate and along Sweeney Boulevard. Minor impacts on the transportation system near the base would be expected from the temporary increase in the number of vehicles during construction. Appropriate routes for construction vehicles would be communicated prior to project implementation, and construction traffic during rush hours would be avoided to the extent practicable. Upon completion of the proposed construction, impacts on the transportation system would cease. Construction vehicles would use roads suitable for their size and weight to minimize impacts on road surfaces. Overall, there would be no significant impacts on transportation.	traffic volume and incidents of congestion; however, heavy volume and traffic congestion occurs during the morning and evening rush hours on weekdays, particularly at the West Gate and along Sweeney Boulevard. Minor impacts on the transportation system near the base would be expected from the temporary increase in the number of vehicles during construction. Appropriate routes for construction vehicles would be communicated prior to project implementation, and construction traffic during rush hours would be avoided to the extent practicable. Construction vehicles would use roads suitable for their size and weight to minimize impacts on road surfaces. Upon completion of the Proposed Action, impacts on the transportation system would cease.	under the No Action Alternative. Traffic and roadways would remain unchanged when compared to existing conditions.
Hazardous Materials and Wastes	Negligible adverse effects on hazardous materials and hazardous wastes would be expected. Hazardous materials and hazardous wastes associated with the proposed construction would be minimal and handled and disposed of in accordance with applicable Federal, state, and local regulations and in accordance with established base procedures. Under Alternative 1, no adverse effects on Site LF-01 or Site ST-26 would be expected, as there would be no proposed construction activities within these sites. However, Alternative 1 would include installation of wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course pond within MRS MU157b. As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project within MRS MU157b. Alternative 1 would also include shoulder construction immediately adjacent to the Aircraft Fire 1 and Aircraft First 2-P PFOS sites. All activities occurring within the MRS site, close to any ERP or PFOS site, or within LUC areas, such as LF-01, would require coordination with the JBLE Environmental	Negligible adverse effects on hazardous materials and hazardous wastes would be expected. Hazardous materials and hazardous wastes associated with the proposed construction would be minimal and handled and disposed of in accordance with applicable Federal, state, and local regulations and in accordance with established base procedures. Alternative 2 includes taxiway construction within MRS MU157b. As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project. Under Alternative 2, no adverse effects on Site LF-01 would be expected, as there are no proposed construction activities within those sites. Alternative 2 would include shoulder construction within portions of Site ST-26 and immediately adjacent to the Aircraft Fire 1 and Aircraft First 2-P PFOS sites. As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project within MRS MU157b. All activities that would occur within the MRS site, Site ST-26, and close to any	No effects on hazardous materials and wastes would occur. No changes to hazardous material and waste use, handling, storage, transport, or disposal would result under the No Action Alternative.

Proposed Action and Alternatives

Resource Area	Alternative 1: Primary Criteria Compliance with Water Quality Swales, Wet Well Storage, and a Pump Station	Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration	No Action Alternative
Hazardous Materials and Wastes (continued)	Restoration Office prior to ground-disturbing activities. Through coordination the location of monitoring wells, the need for dig permits or LUC waivers would be determined. For work within MRS MU157b, additional project planning would determine appropriate health and safety requirements and proper handling and disposal of any MEC or contaminated soils or groundwater that might be encountered during construction. Should MEC or contaminated soils or groundwater be encountered, they would be managed in accordance with base requirements and applicable Federal, state, and local laws and regulations.	ERP or PFOS site, or within LUC areas, such as LF-01, would require coordination with the JBLE Environmental Restoration Office prior to ground-disturbing activities. Through coordination the location of monitoring wells, the need for dig permits or LUC waivers would be determined. For work within MRS MU157b, additional project planning would determine appropriate health and safety requirements and proper handling and disposal of any MEC or contaminated soils or groundwater that might be encountered during construction. Should MEC or contaminated soils or groundwater be encountered, they would be managed in accordance with base requirements and applicable Federal, state, and local laws and regulations.	

dBA – A-weighted decibel; **DNL** – Day-Night Average Sound Level; **JBLE – Langley** – Joint Base Langley-Eustis – Langley Air Force Base; **IFE** – in-flight emergency; **BASH** – Bird/Wildlife Aircraft Strike Hazard; **UFC** – Unified Facilities Criterion/Criteria; **CONUS** – continental United States; **FOD** – foreign object debris; **VDEQ** – Virginia Department of Environmental Quality; **PTE** – Potential-to-Emit; **NAAQS** – National Ambient Air Quality Standards; **SWPPP** – Stormwater Pollution Prevention Plan; **BMP** – best management practice; **DAF** – Department of the Air Force; **CZMP** – Coastal Zone Management Program; **USACE** – US. Army Corps of Engineers; **USFWS** – US Fish and Wildlife Service; **APE** – Area of Potential Effect; **CFR** – Code of Federal Regulations; **SHPO** – State Historic Preservation Office; **EA** – Environmental Assessment; **ROI** – Region of Influence; **EO** – Executive Order; **GIS** – geographic information system; **MRS** – Munitions Response Site; **UXO** – unexploded ordnance; **PFOS** – perfluorooctane sulfonate; **ERP** – Environmental Restoration Program; **LUC** – land use control; **MEC** – munitions and explosives of concern

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the environment potentially affected by the Proposed Action. NEPA requires the analysis address those areas and components of the environment with the potential to be affected; locations and resources with no potential to be affected need not be analyzed. The existing conditions of each relevant environmental resource are described to give the public and agency decision makers a meaningful point from which to compare potential future environmental, social, and economic effects.

Sections 3.1 through **3.15** provide the baseline environment potentially affected by the Proposed Action at JBLE – Langley and the environmental consequences. The expected geographic scope of any potential consequences in identified as the Region of Influence (ROI). For most resources in this chapter, the ROI is defined as the boundaries of JBLE – Langley unless otherwise specified for a particular resource area. Direct and indirect cumulative effects associated with Proposed Action and other reasonably foreseeable proposed projects at and near JBLE – Langley (**Appendix B**) and recently completed projects on JBLE – Langley are also analyzed for each resource.

Resource areas that are anticipated to experience no impacts under implementation of the Proposed Action or its alternatives are not examined in detail in this EA and include land use, visual resources, and prime farmland. A brief summary of the reasons for not undertaking detailed analyses for these resource areas is provided below.

Airspace. The Proposed Action would have no adverse effects on airspace. The Proposed Action would minimize the disruption to JBLE – Langley's ongoing airfield operations and mission. The airfield would be divided into 15 proposed construction work areas for implementation of a phased construction schedule. The proposed construction schedule would allow the runway and taxiway work to be concurrent with the runway work area closures linking to the adjacent taxiway closures. The Proposed Action would provide long-term beneficial impacts on airspace, as there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The lack of paved shoulders affects long-term mission readiness.

Land Use. The Proposed Action would have no effect on current or future land uses on JBLE – Langley. No activities are proposed that would alter existing land use categories at JBLE – Langley or that would be incompatible with existing land uses.

Visual Resources. The Proposed Action would have no significant impacts on visual resources. The proposed runway and taxiway shoulders and airfield storm drainage and grading would not change the general appearance of the airfield.

Prime Farmland. No impacts would occur on prime farmland soils. All nine of the soil types at JBLE – Langley are classified as "not prime farmland" (JBLE – Langley 2019a).

3.1 NOISE

"Noise" is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise often is generated by activities essential to a community's quality of life, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. The hertz is the unit used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighting," measured in A-weighted decibels (dBA),

approximates a frequency response expressing the perception of sound by humans. **Table 3-1** lists sounds encountered in daily life and their dBA levels.

Table 3-1. Common Sounds and Their Levels

Outdoor Sound	Sound Level (dBA)	Indoor Sound
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998
dBA – A-weighted decibel

The Noise Control Act of 1972 (PL 92-574) directs Federal agencies to comply with applicable Federal, state, and local noise control regulations. In 1974, the US Environmental Protection Agency (USEPA) provided information suggesting continuous and long-term Day-Night Average Sound Level (DNL) in excess of 65 dBA is normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals.

3.1.1 Existing Conditions

Aircraft operations and maintenance activities are the primary source of noise at JBLE – Langley. The noise levels on and in the vicinity of JBLE – Langley range between 65 and 85 dBA DNL. Almost the entire base is located within the 70 dBA DNL contour, and all proposed projects in this EA are within the 75 dBA DNL contour (**Figure 3-1**). Daily operation of motor vehicles in and around JBLE – Langley is considered a minor source of noise, with typical noise levels ranging from 50 dBA DNL for light traffic to 80 dBA DNL for diesel trucks.

Noise from construction and maintenance equipment is a common occurrence on JBLE – Langley. Construction noise levels are governed primarily by the noisiest pieces of equipment (e.g., dump trucks, excavators, or graders). In general, the sound level attenuates, or diminishes, at a rate of 6 dBA for each doubling of the distance from a point source (e.g., if the noise level is 85 dBA at 50 feet, it is 79 dBA at 100 feet) (Occupational Safety and Health Administration [OSHA] 2022). Each decrease of 3 dB represents a halving of sound intensity, so a 6 dB decrease represents a quartering of the sound intensity.

3.1.2 Environmental Consequences

Effects on the noise environment would be significant if a proposed action would change the existing noise environment such that it increased exposure to unacceptable noise levels. Potential changes in the noise environment because of a proposed action could also be (1) beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), (2) negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or (3) adverse. Further, an increase in noise levels due to the introduction of new noise sources could create an impact on the surrounding environment.

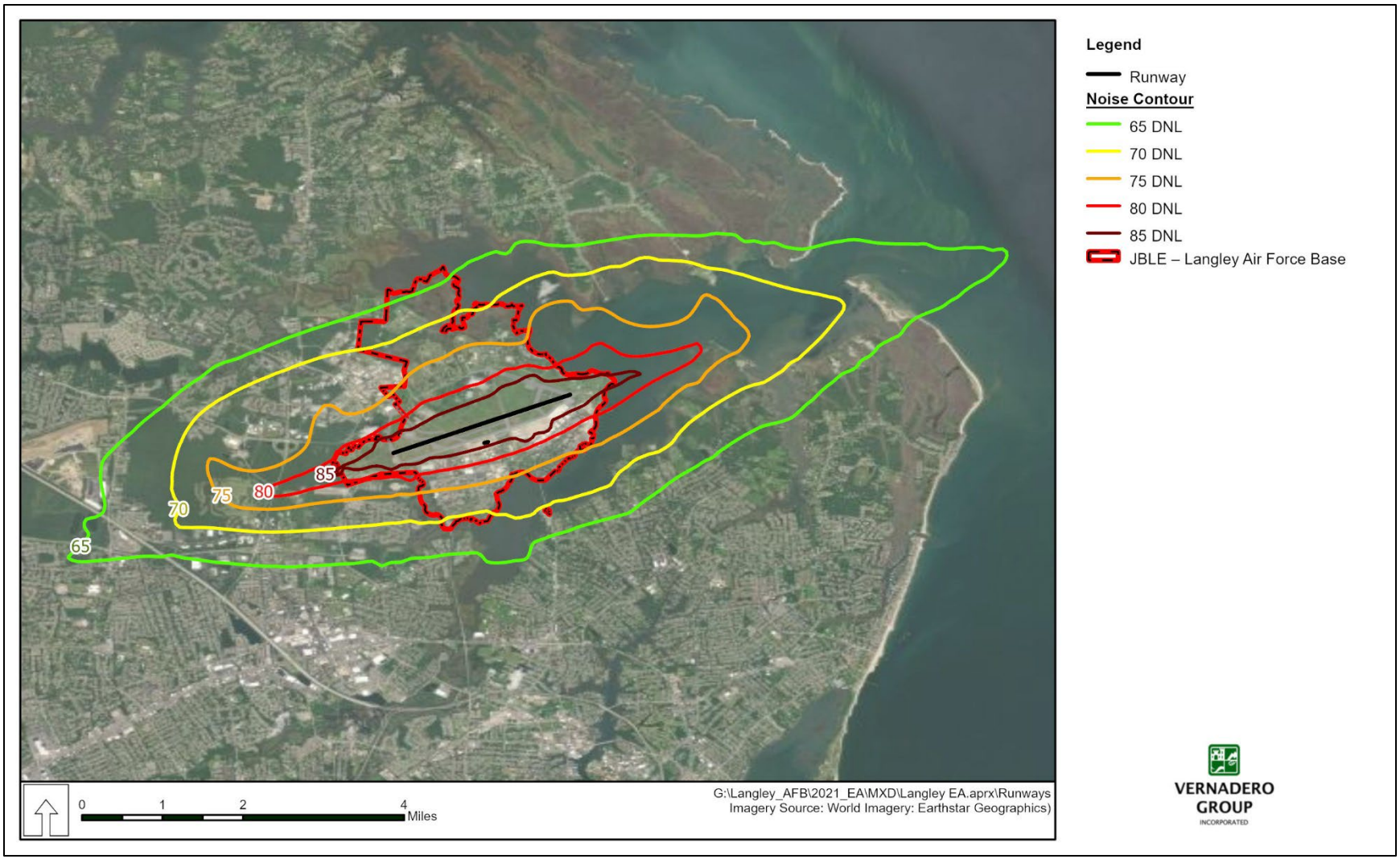

Figure 3-1. Noise Contours at Joint Base Langley-Eustis – Langley Air Force Base

3.1.2.1 Alternative 1

Alternative 1 would have short-term, minor, adverse effects on the noise environment. Short-term increases in noise would be caused by construction activities. Alternative 1 would not create appreciable long-term increases in areas of incompatible land use due to noise and would not lead to a violation of any Federal, state, or local noise regulation.

All Alternative 1 proposed actions would be within the 85 dBA DNL contour (see **Figure 3-1**).**Table 3-2** presents typical noise levels (dBA at 50 feet) that the USEPA has estimated for the main phases of outdoor construction. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple pieces of equipment operating concurrently, the zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. There are no noise-sensitive areas within 800 feet of the Proposed Action that would experience appreciable construction noise. Limited truck and worker traffic might be audible at locations beyond 800 feet. Given the temporary nature of proposed construction activities and the limited amount of noise generated by heavy equipment, these effects would be minor.

Although construction-related noise impacts would be minor, the following BMPs would be implemented to further reduce these already limited effects:

- Heavy equipment mufflers would be properly maintained and in good working order.
- Personnel, particularly equipment operators, would don adequate personal hearing protection to limit exposure and ensure compliance with Federal health and safety regulations.

Following the completion of construction, noise levels proximate to the runway would be similar to current airfield noise levels. There are no sensitive noise receptors proximate to the Alternative 1 proposed construction locations.

Table 3-2. Noise Levels Associated with Outdoor Construction

Construction Phase	L_{eq} (dBA)
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971
L_{eq} – equivalent continuous sound level; **dBA** – A-weighted decibel

Further, similar levels of construction have recently been implemented at JBLE – Langley as part of the first phase of the airfield drainage project. Numerous dump trucks bringing in fill material and more equipment grading in the area than would be associated with Alternative 1 are currently under way with no discernable noise impacts and no complaints or comments from the base population. In addition, implementation of the airfield drainage project construction is occurring on the east end of the runway and is located much closer to housing than any of the construction associated with Alternative 1.

3.1.2.2 Alternative 2

Alternative 2 would have short-term, minor, adverse effects on the noise environment. Short-term increases in noise would be caused by construction activities. Alternative 2 would not create appreciable

long-term increases in areas of incompatible land use due to noise and would not lead to a violation of any Federal, state, or local noise regulation.

All Alternative 2 proposed actions would be within the 85 dBA DNL contour (see **Figure 3-1**). Typical noise levels (dBA at 50 feet) that the USEPA has estimated for the main phases of outdoor construction are provided in **Table 3-2**. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple pieces of equipment operating concurrently, the zone of relatively high construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations. There are no noise-sensitive areas within 800 feet of the Proposed Action that would experience appreciable construction noise. Limited truck and worker traffic might be audible at locations beyond 800 feet. Given the temporary nature of proposed construction activities and the limited amount of noise generated by heavy equipment, these effects would be minor.

Although construction-related noise impacts would be minor, the BMPs outlined under Alternative 1 would also be implemented under Alternative 2. Following the completion of construction, noise levels proximate to the runway would be similar to current airfield noise levels. There are no sensitive noise receptors proximate to the Alternative 2 proposed construction locations.

Further, similar levels of construction have recently been implemented at JBLE – Langley as part of the first phase of the airfield drainage project. Numerous dump trucks are bringing in fill material and more equipment grading is taking place in the area than would be associated with Alternative 2; these are currently under way with no discernable noise impacts or no complaints or comments from the base population. In addition, implementation of the airfield drainage project construction is occurring on the east end of the runway and is located much closer to housing than any of the construction associated with Alternative 2.

3.1.2.3 No Action Alternative

No adverse effects on the noise environment would be expected under the No Action Alternative. The overall noise environment would remain unchanged when compared to existing conditions.

3.1.2.4 Cumulative Effects

Implementation of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, would not change the character or nature of the noise environment at JBLE – Langley. Cumulative noise impacts would not be expected to be significant as construction-related noise associated with the Proposed Action would be short term and temporary, would be similar in nature to the existing noise environment, and would occur within the current 85 dBA DNL contour. No significant long-term cumulative noise impacts associated with the implementation of the Proposed Action in combination with reasonably foreseeable projects would occur at JBLE – Langley.

3.2 HEALTH AND SAFETY

Health and safety address the potential impact that the alternatives for implementing the Proposed Action would have on human health and safety. In the context of the Proposed Action, potential hazards and risks to safety and occupational health include those associated with construction activities and conflicts between construction activities and ongoing airfield operations. Flight, mishap, and explosive safety are not considered in this EA.

Standards and requirements for the health and safety of workers and military personnel at JBLE – Langley are established and governed by the OSHA (29 CFR 1910 et seq.), the DoD, and the DAF. Applicable OSHA standards include those addressing general industry practices (29 CFR 1910), construction (29 CFR 1926), and elements for Federal employees (29 CFR 1960). Safety and health

requirements for workers at US military installations are established by DoDI 6055.01, *DoD Safety and Occupational Health (SOH) Program, Effective April 21, 2021* (DoD 2021) and at Air Force installations by DAFMAN 91-203, *Air Force Occupational Safety, Fire and Health Standards*, and AFI 91-202, *The US Air Force Mishap Prevention Program* (Air Force 2021), DAFMAN 91-225, *Aviation Safety Programs* (31 January 2022), and other applicable guidance.

3.2.1 Existing Conditions

Potential safety issues at JBLE – Langley include flight and airfield operations and maintenance, antiterrorism/force protection activities, and construction activities. Clearance and permission are required to enter or work in restricted areas associated with the airfield. All contractors working on construction projects on JBLE – Langley are responsible for complying with DAF safety and OSHA regulations. Further, they are required to conduct construction activities in a manner that does not pose any undue risk to construction workers or base personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of material safety data sheets. Day-to-day operation and maintenance conducted by the 633 ABW are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by the Air Force Occupational Safety and Health (AFOSH) program.

The presence of obstructions, lack of shoulders, abrupt grade changes, open ditches, and standing water on the airfield presents a risk of damage to aircraft and injury to DAF personnel.

3.2.2 Environmental Consequences

Potential impacts of a proposed action on safety and occupational health would be considered significant if the action would create a safety risk inconsistent with AFOSH and OSHA standards. The health and safety of on-site military and civilian workers are safeguarded by numerous DoD and military-branch-specific requirements designed to comply with standards issued by Federal OSHA, USEPA, and state occupational safety and health agencies. These standards specify health and safety requirements, the amount and type of training required for workers, the use of personal protective equipment, administrative controls, engineering controls, and permissible exposure limits for workplace stressors.

3.2.2.1 Alternative 1

Under Alternative 1, proposed construction activities would not impact health and safety. All contractors involved in construction would be responsible for following Federal OSHA regulations and would be required to conduct these activities in a manner that does not increase risk to workers, the DAF community, or the public. OSHA regulations address the health and safety of people at work, and the regulations cover potential exposure to a wide range of chemical, physical, and biological hazards, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure via administrative or engineering controls, substitution, use of personal protective equipment, and availability of safety data sheets. Mishap prevention program requirements, assignment of responsibilities for program elements and program management information are established within AFI 91-202, *The US Air Force Mishap Prevention Program*, dated 12 March 2020, and implementing Air Force Policy Directive 91-2, *Safety Programs.* All Air Force OSHA 91-series standards are consolidated in DAFMAN 91-203, *Air Force Occupational Safety, Fire and Health Standards,* dated 25 March 2022. The AFOSH Program applies to all DAF activities, and its purpose is to minimize the loss of resources and provide individual protection from death, injuries, or illnesses by managing risks. Federal civilian and military personnel who must enter areas under construction should be familiar with and adhere to OSHA and AFOSH requirements. Individuals tasked to operate and maintain equipment, such as power generators, are responsible for following all applicable technical guidance, as well as adhering to established OSHA and Air Force safety guidelines.

Alternative 1 divides the airfield into 15 construction work areas (**Figure 2-2**). Work within the first three construction work areas would occur at night, reducing possible sources of conflict with airfield operations. Remaining projects would occur either during the day or night depending on their critical location and frequency of use. All construction activities would be coordinated to reduce the potential for adverse effects. The proposed construction schedule would allow the runway and taxiway work to be concurrent with the runway work area closures linking to the adjacent taxiway closures.

There would be no adverse or significant, short-or long-term impacts on the safety of the JBLE – Langley community and contractor support associated with implementation of Alternative 1. Improvements to Runway 08-26 and taxiways would generally enhance safety during all uses of the runway and taxiways by members of the JBLE – Langley community and installation partners.

Alternative 1 would provide long-term, minor, beneficial impacts on health and safety, as there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The proposed stormwater management actions would remove standing water on the airfield and could reduce BASH risk, thereby further improving safety for pilots.

3.2.2.2 Alternative 2

Under Alternative 2, proposed construction activities would not impact health and safety. All contractors involved in construction would adhere to the same OSHA regulations and AFIs as mentioned in Alternative 1. Federal civilian and military personnel that must enter areas under construction should be familiar with and adhere to OSHA and AFOSH requirements. Individuals tasked to operate and maintain equipment, such as power generators, are responsible for following all applicable technical guidance, as well as adhering to established OSHA and Air Force safety guidelines.

Alternative 2 divides the airfield into the same 15 construction work areas as Alternative 1. All construction activities and appropriate safety measures would be coordinated to ensure reduce safety hazards and conflict with airfield operations.

Alternative 2 would provide long-term, minor, beneficial impacts on health and safety, as there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies.

3.2.2.3 No Action Alternative

Under the No Action Alternative, short- and long-term adverse impacts could be expected; however, the impacts would be less than significant as JBLE – Langley would continue to manage conditions to prevent and/or minimize impacts and safety and occupational health to the extent practicable. The proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not proceed. Under this alternative, Runway 08-26 would continue to be noncompliant with UFC 3-260-01, making JBLE – Langley the only CONUS air base without a full complement of airfield shoulders. There would continue to be no off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, IFEs, or weather anomalies. The risk of FOD damage would remain elevated due to vehicle traffic use of the runway and taxiway surfaces. Wide-body aircraft with engine locations wider than the existing paved surfaces would continue to have the potential to generate FOD on active surfaces. Vehicle traffic, including Fire and Emergency Response, Aircraft Arresting System maintenance, airfield lighting maintenance, and Navigational Aids service vehicles would continue driving on the runway and taxiway surfaces.

3.2.2.4 Cumulative Effects

Ultimately, improved Runway 08-26 and taxiways would generally enhance safety during all uses of the runway and taxiways by members of the JBLE – Langley community. The Proposed Action, in addition to reasonably foreseeable future actions on and off the installation, would not result in adverse incremental impacts on safety and occupational health. Impacts from construction, considered cumulatively, would continue to be low given strict adherence to all applicable safety and occupational health requirements. These requirements further minimize the relatively low risk to human health and safety generally associated with construction activities.

3.3 AIR QUALITY AND CLIMATE CHANGE

3.3.1 National Ambient Air Quality Standards and Attainment Status

Air quality in various areas of the country is affected by pollutants emitted by numerous sources, including natural and human-made sources. To manage pollutant emission levels in ambient air, the USEPA was mandated under the Clean Air Act (CAA) to set air quality standards for select pollutants that are known to affect human health and the environment.

The USEPA has divided the country into geographical regions known as Air Quality Control Regions (AQCRs) to evaluate compliance with the National Ambient Air Quality Standards (NAAQS) (40 CFR §50). NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM_{10}] and particulates equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The VDEQ has adopted the NAAQS, thereby requiring the use of the standards within the Commonwealth of Virginia (9VAC5 Chapter 30). Each AQCR has regulatory areas that are designated as an attainment area or nonattainment area for each of the criteria pollutants depending on whether it meets or exceeds the NAAQS. Attainment areas that were reclassified from a previous nonattainment status to attainment are called maintenance areas and are required to prepare a maintenance plan for air quality.

JBLE – Langley is located in the independent city of Hampton, which is in the Hampton Roads Intrastate AQCR in Virginia (40 CFR § 81.93). The city of Hampton is part of the Norfolk-Virginia Beach-Newport News (Hampton Roads) region.

The Hampton Roads area is in attainment of all current applicable NAAQS. However, the area is designated maintenance for the 1997 ozone NAAQS since June 2007. Note, although the 1997 ozone standard was revoked by the USEPA (Federal Register [FR], Volume 80, Number 44, 6 March 2015), the maintenance areas are required to demonstrate compliance with the standard for purposes of the CAA conformity until 28 July 2027. This requirement was based on the court decision in Case No. 15-1115 (South Coast Air Quality Management District v. USEPA 2018), on USEPA's guidance on the court decision (USEPA 2018), and designations in the Air Conformity Applicability Model (ACAM).

Overall, VDEQ monitoring data show that criteria pollutant emission concentrations of CO, SO_2, nitrogen oxides (NO_x), and O_3 have been decreasing over the past several years. Additionally, based on the past three-year (2019 –2021) ozone monitoring network data, there have been no exceedances of the 2015 ozone standard of 0.070 parts per million in any of the areas of the state (VDEQ 2021). The reductions are believed to be the result of emission control measures that have been implemented over the past two decades. These measures targeted motor vehicle engines, gas stations, the consumer products industry, and power plants.

Federal actions in NAAQS nonattainment and maintenance areas are also required to comply with the USEPA's General Conformity Rule (40 CFR § 93). These regulations are designed to ensure that Federal actions do not impede local efforts to achieve or maintain attainment with the NAAQS. Federal actions are evaluated to determine if the total indirect and direct net emissions from the project are below *de minimis* levels for each of the pollutants as specified in 40 CFR § 93.153. If *de minimis* levels are not exceeded for any of the pollutants, no further evaluation is required. However, if net emissions from the project exceed the *de minimis* thresholds for one or more of the specified pollutants, a demonstration of conformity, as prescribed in the General Conformity Rule, is required.

USEPA's Prevention of Significant Deterioration (PSD) regulations apply in attainment areas and apply only to a major stationary source (i.e., source with the potential to emit 250 tons per year (tpy) of any regulated pollutants), and a significant modification to a major stationary source, as defined. Additional PSD major source and significant modification thresholds apply for greenhouse gases (GHGs). PSD permitting can also apply to a proposed project if the following conditions exist: (1) the proposed project is a modification with a net emissions increase to an existing PSD major source, (2) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I areas), and (3) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 milligram per cubic meter or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks.

3.3.2 Existing Emissions and Permitting Overview

The regional climate of southeast Virginia, where the Proposed Action is proposed to take place, is classified as a humid subtropical climate that is characterized by mild winters and hot, humid summers. The warmest month in the region is July, with average high and low temperatures of 89 degrees Fahrenheit (°F) and 73°F, respectively. January is the coldest month with an average high temperature of 50°F and average low temperature of 34°F. The wettest month by average precipitation is July with an average of 5.1 inches of rain. The driest month is February with an average of 3.1 inches of precipitation (US Climate Data 2022). Summers are characterized by frequent thunderstorms, and winters are impacted by midlatitude cyclones. Tropical cyclones affect the region about once per year during the summer and fall months.

3.3.3 Climate Change

GHGs are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere helps regulate the Earth's temperature and are believed to contribute to global climate change. GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, and several hydrocarbons and chlorofluorocarbons.

In Virginia, the USEPA regulates GHG primarily through a permitting program known as the GHG Tailoring Rule. In addition to the GHG Tailoring Rule in 2009, the USEPA promulgated a rule requiring sources to report their GHG emissions if they emit more than 25,000 metric tons or more of carbon dioxide equivalents (CO_2e) per year (40 CFR § 98.2[a][2]). Both regulations apply only to stationary sources of emissions.

The actual CO_2e emissions from stationary sources at JBLE – Langley is estimated to be 16,196 metric tpy (JBLE – Langley 2020a). All GHG emissions at JBLE – Langley fall under the threshold for reporting and the base continues to be exempt from mandatory USEPA GHG reporting.

3.3.4 Environmental Consequences

Although the region is in attainment for the current O_3 standard, because of historical nonattainment and maintenance designations for O_3 the primary pollutants of concern are NO_x and volatile organic compounds (VOC). In nonattainment and maintenance areas, emissions at or above 100 tpy are considered significant, particularly as this threshold triggers full conformity analysis. Proposed project emissions below 100 tpy are considered moderate or, if very low, minor.

Based on guidance in Chapter 4 of DAF's Air Quality EIAP Guide, Volume II – Advanced Assessments, proposed project emissions are also compared against the insignificance indicator of 250 tpy for PSD major source permitting threshold for actions occurring in areas that are in attainment for all criteria pollutants (25 tpy for lead). Thus, for the remaining criteria pollutants (i.e., carbon monoxide, sulfur dioxides, lead, $PM_{2.5}$, and PM_{10}), the annual emission increases would not be considered significant, if they are below the relevant insignificant indicator values.

3.3.4.1 Alternative 1

Implementation of Alternative 1 would generate air emissions that would impact air quality in an adverse way, but these emissions are expected to be short term and minor.

Under Alternative 1, the primary source of air emissions would be from activities associated with construction and earth disturbance, which would be temporary. It is anticipated that suitable fugitive dust control measures would be employed during construction activities to mitigate fine particulate emissions.

Table 3-3 presents the total annual emissions expected from Alternative 1. The affected area includes the installation and its vicinities where particulates and gaseous pollutants would be emitted. The methodologies, emission factors, emission calculations and related assumptions for proposed activities are outlined in **Appendix C**. The ACAM documentation of estimated emissions in the form of a Record of Conformity Applicability (ROCA) is provided in **Appendix C**.

As seen in **Table 3-3**, estimated VOC and NO_x emissions from construction activities would be well below the 100 tpy *de minimis* threshold for General Conformity and would not contribute to a violation of any Federal, state, or local air regulations.

Long-term impacts would be negligible. Emissions from all other remaining criteria pollutants would be well below their relevant insignificance indicator emission levels. Emissions presented in **Table 3-3** are estimated assuming all construction activities for the various projects would occur simultaneously over the duration of one calendar year. However, construction work on the runway shoulders alone is projected to occur over two calendar years. Thus, annual pollutant emissions from Proposed Action would be anticipated to be well below the estimated emissions shown in **Table 3-3,** if implemented per the anticipated schedule.

An emergency generator at the pump station would be the only new stationary air emissions source that would operate permanently once construction is completed. Emissions from the operation of the generator are shown in **Table 3-3,** and they would not be significant.

Impacts on air quality would be minor, as criteria pollutant emissions from construction activities would be intermittent and short term. Further, it is anticipated that all relevant Federal and state regulations, including any requirements to obtain a permit, would be followed to limit impacts on air quality. JBLE – Langley would comply with applicable VDEQ air regulations, including those for control of visible emissions and fugitive dust emissions (9 VAC 5-50-60 et seq.), open burning (9 VAC 5-130-10 et seq.) and permits for fuel-burning equipment (9 VA C 5-80-1100 et seq.), such as the emergency generator.

Table 3-3. Alternative 1 – Total Annual Increases in Criteria Pollutant Emissions Summary

Source	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	Pb
Construction [1, 2] (tpy)	2.86	2.64	49.02	0.11	0.01	0.49	0.00
Operational [3] (tpy)	1.72	6.48	0.20	0.20	0.003	0.18	0.00
Total Emissions (tpy)	4.58	9.12	49.22	0.31	0.01	0.67	0.00
De Minimis Threshold [4] (tpy)	-	100	-	-	-	100	-
Exceeded *de Minimis* Threshold	-	No	-	-	-	No	-

CO – carbon monoxide; **NO_x** – nitrogen oxides; **PM_{10}** – particulate matter less than 10 microns in diameter; **$PM_{2.5}$** – particulate matter less than 2.5 microns in diameter; **SO_2** – sulfur dioxide; **VOC** – volatile organic compound; **tpy** – tons per year; **Pb** – lead

Notes:

[1] ACAM output (refer to Appendix C)

[2] Alternative 1 implementation for all construction projects is assumed to occur during one calendar year (2023).

[3] ACAM estimates from the backup generator operations. Assumed to operate once construction finishes (2024).

[4] *De minimis* thresholds are for ozone precursors (NO_x and VOC) only. The installation is in a maintenance area for ozone and in an attainment area for all other criteria pollutants.

Total CO_2e emissions for Alternative 1 were estimated to be approximately 1,092 tons (759 tons from construction and 333 tons from operations). VDEQ reported Virginia's 2019 GHG emissions to be approximately 83.767 million metric tons (MMT) CO_2e from all sectors, which translates to approximately 93.24 million tons of CO_2e (1 tonne = 1.10231 tons). Based on VDEQ data, Alternative 1 would account for about 0.0011 percent of the VDEQ's GHG emissions. Also, Alternative 1 GHG operational emissions when combined with GHG actual emissions of approximately 18,000 tons for JBLE – Langley would be well below the 27,563 tpy threshold beneath which facilities are not required to report GHG emissions to USEPA.

Other than the backup diesel generator for the pump station, no new stationary source of air emissions would be expected to be constructed or stationed permanently at JBLE – Langley for the proposed implementation of Alternative 1. The backup emergency generator would most likely not require a permit for construction; however, it will need to be added to the current permit to be included in the basewide Potential-to-Emit emissions. Specifics will be needed to determine complete permitting actions.

3.3.4.2 Alternative 2

Implementation of Alternative 2 would generate air emissions that would impact air quality in an adverse way, but these emissions would be expected to be short term and minor.

Under Alternative 2, the primary source of air emissions would be from activities associated with construction and earth disturbance, which would be temporary in nature. It is anticipated that suitable fugitive dust control measures would be employed during construction activities to reduce fine particulate emissions.

Table 3-4 presents total annual emissions from Alternative 2. The affected area includes the installation and its vicinities where particulates and gaseous pollutants would be emitted. The methodologies, emission factors, emission calculations, and related assumptions for proposed activities are outlined in **Appendix C.** The ACAM documentation of estimated emissions in the form of a ROCA is also provided in **Appendix C.**

Table 3-4. Alternative 2 – Total Annual Increases in Criteria Pollutant Emissions Summary

Source	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	Pb
Construction [1, 2] (tpy)	3.66	3.43	69.55	0.15	0.01	0.63	0.00
De Minimis Threshold [3] (tpy)	-	100	-	-	-	100	-
Exceeded *de Minimis* Threshold	-	No	-	-	-	No	-

CO – carbon monoxide; **NO_x** – nitrogen oxides; **PM_{10}** – particulate matter less than 10 microns in diameter; **$PM_{2.5}$** – particulate matter less than 2.5 microns in diameter; **SO_2** – sulfur dioxide; **VOC** – volatile organic compound; **tpy** – tons per year; Pb – lead

Notes:

[1] ACAM output (refer to Appendix C)

[2] Alternative 2 implementation for all construction projects is assumed to occur during one calendar year (2023).

[3] *De minimis* thresholds are for ozone precursors (NOx and VOC) only. The installation is in a maintenance area for ozone and in an attainment area for all other criteria pollutants.

As seen in **Table 3-4**, estimated VOC and NO_x emissions from construction activities would be well below the 100 tpy *de minimis* threshold for General Conformity and would not contribute to a violation of any Federal, state, or local air regulations. Compared to Alternative 1, fine particulate matter emissions for Alternative 2 would be almost 20 tons greater than those for Alternative 1, but both alternative emissions would still be well below significance indicator levels.

Long-term impacts would be negligible. Emissions from all other remaining criteria pollutants would be well below their relevant insignificance indicator emission levels. Emissions presented in **Table 3-4** are estimated assuming all construction activities for the various projects would occur simultaneously over the duration of one calendar year. However, construction work on the runway shoulders alone is projected to occur over two calendar years. Thus, annual pollutant emissions from Proposed Action would be anticipated to be well below estimated emissions shown in **Table 3-4,** if implemented as per the anticipated schedule.

Alternative 2 would not have any new permanent air emissions source proposed for implementation and therefore there would be no emissions from operational activities.

Impacts on air quality would be minor as criteria pollutant emissions from construction activities would be intermittent and short term. Further, it is anticipated that all relevant Federal and state regulations, including any requirements to obtain a permit, would be followed to limit impacts on air quality. JBLE – Langley would comply with applicable VDEQ air regulations, including those for control of visible emissions and fugitive dust emissions (9 VAC 5-50-60 et seq.), open burning (9 VAC 5-130-10 et seq.) and permits for fuel-burning equipment (9 VA C 5-80-1100 et seq.), such as an emergency generator.

Overall, emissions from Alternative 2 would not adversely affect the region's attainment status with the NAAQS.

Total CO_2e emissions for Alternative 2 would be approximately 970 tons from construction. VDEQ reported Virginia's 2019 GHG emissions (VDEQ 2019) to be approximately 83.767 MMT CO_2e from all sectors, which translates to approximately 93.24 million tons of CO_2e (1 tonne = 1.10231 tons). Based on VDEQ data, Alternative 2 would account for about 0.0010 percent of the VDEQ's GHG emissions, and all of it would be short term.

No new stationary source of air emissions would be constructed or stationed permanently at JBLE – Langley for the proposed implementation of Alternative 2. Thus, project emissions were not evaluated for new source construction permitting and Title V permitting impacts.

3.3.4.3 No Action Alternative

The No Action Alternative would not have an impact on air quality. With this alternative, there would be no concerns regarding the adverse air quality effects that would have occurred from vehicular operations of construction equipment and vehicles or fugitive dust from earth disturbance activities.

3.3.4.4 Cumulative Effects

The Proposed Action, in addition to past, present, and reasonably foreseeable future actions at JBLE – Langley would result in less than significant cumulative impacts on air quality.

Most of the reasonably foreseeable projects proposed at JBLE – Langley are either construction projects or port expansion, rehabilitation, or maintenance dredging projects. With any addition of ongoing construction projects in the area, criteria pollutant emissions, especially PM_{10} emissions, could increase; however, these increases would be short in duration (lasting a few days) and localized, and the incremental impact on air quality in the longer term would be negligible. In this way, the Proposed Action activities when combined with the impacts of other projects on or proximate to the base would not significantly impact air quality.

The implementation of Alternative 1 or Alternative 2 would result in CO, VOC, and NO_x emissions from vehicular operations; however, these emissions would be minor, and the duration would be short and intermittent; therefore, impacts on air quality in combination with other projects would not be significant. GHG emissions would be generated because of vehicular operations, but they would be minor, temporary, and intermittent and unlikely to add to the regional GHG levels in any meaningful way.

Overall, no incremental change to air quality would occur with the addition of the Proposed Action to past, present, and reasonably foreseeable future actions; therefore, cumulative effects on air quality would be less than significant.

3.4 EARTH RESOURCES

Earth resources are defined as the physiography, topography, geology, and soils of a given area. Physiography and topography pertain to the general shape and arrangement of a land surface, including its height and the location of its natural and human-made characteristics. Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Soils are the surface mineral and/or organic layer of the earth.

The ROI for earth resources in this EA is defined as the runway and taxiways improvement proposed at JBLE –Langley and adjacent areas that would experience land disturbance, such as grading and laydown areas (see **Figures 2-1** and **2-3**).

3.4.1 Existing Conditions

The upper surface geology at JBLE – Langley consists of "recent deposits," which contain alluvium (clay, sand, and silt), marsh sediment (peat, silt, sand, and clay with organic matter), and sand (beach and dune sand occurring as a tidal mud flat). They are Coastal Plain sediments that extend from the surface to a depth of 774 feet (JBLE – Langley 2021b).

Soils within JBLE – Langley are mostly unconsolidated fluvial, marine, and estuarine deposits underlain by beach sands, sandy clays, and gravels from the Tabb and Lynnhaven formations. Land-moving and filling activities at JBLE – Langley have altered soil profiles to the extent that site soil profiles do not concur with local soil surveys from adjacent counties (JBLE – Langley 2016). Soil types at JBLE – Langley are classified as "not prime farmland." The list below identifies soils of the JBLE – Langley area (JBLE – Langley 2014; US Department of Agriculture 2019):

- Udorthents-Dumps complex
- Chickahominy-Urban land complex, 0 to 2 percent slopes
- Axis very fine sandy loam, 0 to 2 percent slopes
- Altavista-Urban land complex, 0 to 3 percent slopes
- Lawnes loam, 0 to 1 percent slopes, very frequently flooded
- Bohicket muck, 0 to 1 percent slopes
- Johnston silt loam, 0 to 2 percent slopes
- Urban land

3.4.2 Environmental Consequences

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are typically considered when evaluating potential impacts of a proposed action on geological resources. An alternative could have an adverse impact if any the following were to occur as a result of implementing the alternative: (1) a decrease in soil productivity or fertility; (2) changes to the soil composition, structure, or function within the environment; (3) impacts on soils classified as prime and unique farmland; or (4) an increased potential for soil erosion.

3.4.2.1 Alternative 1

Implementation of Alternative 1 would not be expected to result in short- or long-term adverse effects on geology or topography. Excavation depth would be approximately 18 inches and would not involve the penetration or disturbance of underlying geologic strata, would not disturb or impact unique or noteworthy geologic features underlying JBLE – Langley, and would not alter the overall terrain and contours of the flightline, an area that has been extensively graded. Construction would result in the alteration of soil layer structure, soil compaction, and expose soils to erosion from wind and water. Adherence to the SWPPP and applicable BMPs would minimize impacts on soils. Soils disturbed during construction would either be developed per BMPs or restored to a vegetated or otherwise permeable condition, preventing or minimizing the potential for ongoing erosion. Additionally, implementation of the alternative would be phased so not all soil disturbance would occur simultaneously, further minimizing impacts.

3.4.2.2 Alternative 2

Impacts on earth resources would be the same as those described for Alternative 1: effects on soil structure, compaction, erosion potential, and overall disturbance would be similar to those described in Alternative 1. Mitigation techniques described in Alternative 1 would be applied in Alternative 2 as well.

3.4.2.3 No Action Alternative

Under the No Action Alternative, the proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not occur at this time. Runway 08-26 would continue to be noncompliant with UFC 3-260-01. There would be no impact to geology, topography, or soils as no grading or other disturbance would occur.

3.4.2.4 Cumulative Effects

Flightline development in the area would not negatively impact geological resources. Short-term impacts on soils would be managed through the use of BMPs. Potential environmental impacts on earth resources from implementation of either Alternative 1 or 2 would be negligible and would remain so when considered cumulatively with potential impacts on earth resources from the other reasonably foreseeable future actions identified in **Appendix B.**

3.5 FLOODPLAINS

Floodplains are areas of low, level ground present along rivers, stream channels, or coastal waters that are subject to periodic or infrequent inundation due to rain or melting snow. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and provision of habitat for a diversity of plants and animals. Flood potential is evaluated by the Federal Emergency Management Agency, which defines the 100-year floodplain as an area within which there is a 1 percent chance of inundation by a flood event each year, or a flood event once every 100 years. The 500-year floodplain is an area where there is a 0.2 percent chance of inundation by a flood event each year, or a flood event once every 500 years. The likelihood of a 100-year or 500-year flood event is based on historical hydrology; future flood flows may vary in frequency. The risk of flooding is influenced by local topography, the frequency of precipitation events, the size of the watershed above the floodplain, and upstream development.

Federal, state, and local regulations often limit floodplain development to passive uses, such as recreation and conservation activities, to reduce the risks to human health and safety. EO 11988, *Floodplain Management,* provides guidelines that agencies should carry out as part of their decision making on projects that have potential impacts on or within the floodplain. This EO requires Federal agencies to avoid, to the extent possible, the long- and short-term, adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. EO 13690, *Establishing a Flood Risk Management Standard and Process for Further Soliciting and Considering Stakeholder Input,* signed in January 2015, established a Federal Flood Risk Management Standard and a process for further soliciting and considering stakeholder input.

3.5.1 Existing Conditions

Most of JBLE – Langley lies within the 100-year floodplain while only a small portion lies within the 500-year floodplain (**Figure 3-2**). Further, only a few, small sections of the runways and taxiways are located within the 500-year floodplain. JBLE – Langley occasionally has severe flooding with some strong nor'easters and hurricanes. Flood-prone areas on JBLE – Langley include any land below 9 feet mean sea level along the base perimeter and adjacent to water bodies (JBLE – Langley 2016).

3.5.2 Environmental Consequences

Evaluation criteria for potential impacts on floodplains are based on water availability, quality, and use; existence of floodplains; and associated regulations. Adverse impacts on floodplains would occur if the proposed or alternative actions (1) endanger public health by creating or worsening flood conditions, (2) violate established laws or regulations adopted to protect floodplains, or (3) are proposed in areas with high probabilities of flooding.

3.5.2.1 Alternative 1

Alternative 1 would occur within the 100-year floodplain and a few isolated areas of the 500-year floodplain. However, there would be no significant adverse effects on the floodplain from implementation of Alternative 1 because the runway and taxiway improvements would not modify floodplain hazard conditions or violate any floodplain laws or regulations.

3.5.2.2 Alternative 2

Alternative 2 would occur within the 100-year floodplain and a few isolated areas of the 500-year floodplain. However, there would be no significant adverse effects on the floodplain from implementation

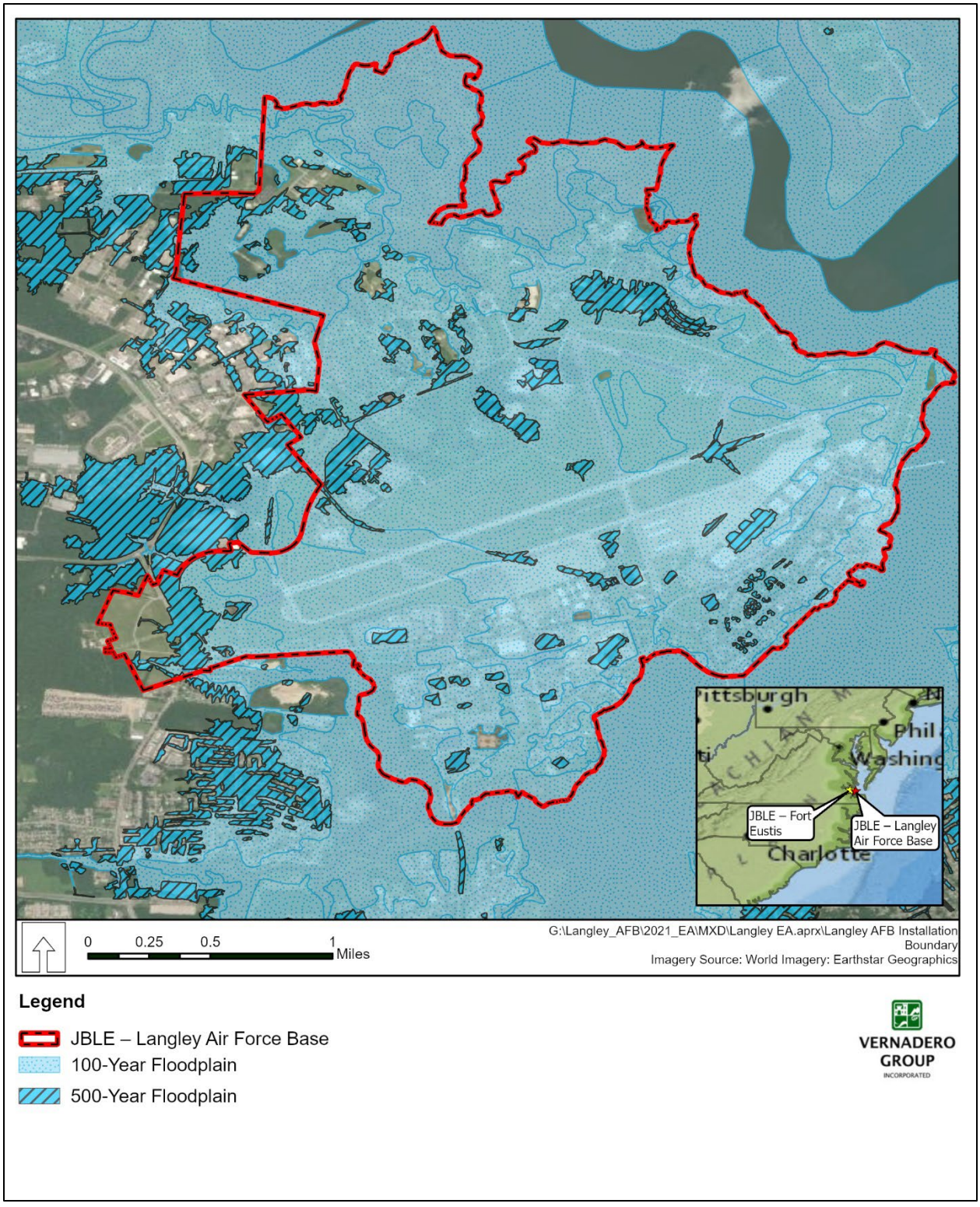

Figure 3-2. Floodplains at Joint Base Langley Eustis – Langley

of Alternative 2 because the runway and taxiway improvements would not modify floodplain hazard conditions or violate any floodplain laws or regulations.

3.5.2.3 No Action Alternative

Under the No Action Alternative, shoulder and taxiway construction for Runway 08-26 would not occur, and there would be no effect on the floodplain.

3.5.2.4 Cumulative Effects

Alternative 1 or Alternative 2, in addition to reasonably foreseeable future actions identified in Appendix B, are not anticipated to result in cumulative impacts on floodplains. All proposed and cumulative actions must be consistent with applicable Federal, state, and local regulations that limit floodplain development.

3.6 COASTAL ZONE MANAGEMENT

The coastal zone refers to coastal waters and the adjacent shorelines, including islands, transition and intertidal areas, salt marshes, wetlands, and beaches, extending to the outer limit of state title and ownership under the Submerged Lands Act (i.e., 3 nautical miles). Coastal areas in the US receive special land use protections through the Federal Coastal Zone Management Program (CZMP). Authorized by the CZMA of 1972 (16 USC § 1451, et seq., as amended), this Federal program addresses the coastal issues of the US through a voluntary partnership among the Federal government and the coastal and Great Lakes states and territories. The program's purpose is to protect, restore, and responsibly develop the nation's diverse coastal communities and resources. The NOAA oversees the CZMP for the Federal government.

Section 307 of the CZMA provides states with the authority to offer input in Federal agency decision making for activities potentially affecting coastal uses or resources. This Federal consistency provision provides this authority to the states that would not otherwise be authorized through other Federal programs. Section 307 of the CZMA requires that Federal actions that have reasonably foreseeable effects on any coastal use or natural resources of the coastal zone be consistent with the enforceable policies of a state's approved coastal management program. Federal agency activities must be consistent with the state's coastal management program to the maximum extent practicable. A CZMA Consistency Determination is provided in **Appendix C.**

3.6.1 Existing Conditions

All of JBLE – Langley is within Virginia's coastal zone, as defined by the Virginia CZMP. Virginia's CZMP is federally approved, and activities on the base with the potential to affect coastal resources must comply to the maximum extent practicable with the enforceable policies of the CZMP. JBLE – Langley is required by the CZMA to follow the Chesapeake Bay Preservation Act (Virginia Code §10.1-2100) to the maximum extent practicable. JBLE – Langley established 100-foot upland buffers at tidal creeks, streams, and wetlands, in conjunction with the 100-foot buffers established by the city of Hampton. The objective is to maintain these areas with native vegetation (JBLE – Langley 2019a).

3.6.2 Environmental Consequences

Impacts on the coastal zone would be considered significant if actions are inconsistent with the CZMA or Virginia's CZMP.

3.6.2.1 Alternative 1

Alternative 1 is consistent with the enforceable policies of the Virginia CZMP to the maximum extent practicable. The CZMA Consistency Determination provided in **Appendix C** describes the potential impacts of Alternative 1 on the coastal zone.

3.6.2.2 Alternative 2

Alternative 2 is consistent with the enforceable policies of the Virginia CZMP to the maximum extent practicable.

3.6.2.3 No Action Alternative

Under the No Action Alternative, shoulder and taxiway construction for Runway 08-26 would not occur, and there would be no impact on coastal zone management. The CZMA Consistency Determination provided in **Appendix C** describes the potential impacts of the Alternative 2 on the coastal zone.

3.6.2.4 Cumulative Effects

Neither Alternative 1 nor Alternative 2 would result in significant cumulative long-term adverse impacts on the coastal zone; each would be consistent with Virginia's CZMP to the maximum extent practicable. Potential impacts on the coastal zone from Alternative 1 or Alternative 2 are negligible to minor on their own. When added to impacts on the coastal zone from the other reasonably foreseeable future actions identified in **Appendix B**, Alternatives 1 and 2 are anticipated to result in cumulative impacts on the coastal zone. An EA for Airfield and Drainage Projects at Joint Base Langley – Eustis, February 2021, will result in the removal of all surface water features and wetlands within the airfield. While not consistent with Enforceable Policy I of the Virginia CZMP, these actions have been permitted by the USACE under permit # NAO-2017-00574/VMRC # 17-V0458 and were analyzed and discussed in the 2021 Final EA for Airfield and Drainage Projects at JBLE – Langley (2021).

3.7 WATER RESOURCES

Water resources are natural and human-made sources of water that are available for use by, and for the benefit of, humans and the environment. Water resources include groundwater, surface water, floodplains, wetlands, the coastal zone, and stormwater. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes and ensures compliance with the Clean Water Act (CWA).

3.7.1 Existing Conditions

3.7.1.1 Surface Water

The CWA regulates discharges of pollutants into surface Waters of the US (WOTUS). Jurisdictional waters, including surface water resources as defined in 33 CFR 328.3, are regulated under § 401 and § 404 of the CWA and § 10 of the Rivers and Harbors Act. Human-made features not directly associated with a natural drainage, such as stormwater control features to convey, treat, infiltrate, or store runoff constructed in upland or nonjurisdictional waters, are generally not considered jurisdictional waters. The CWA establishes Federal limits through the National Pollutant Discharge Elimination System (NPDES) permit process for regulating point (end of pipe) and nonpoint (e.g., stormwater) discharges of pollutants into the WOTUS and quality standards for surface waters. The USACE recently revised the definition of WOTUS, effective on March 20, 2023 (88 FR 3004). Wetlands are discussed in **Section 3.8.1.3** and stormwater is discussed in **Section 3.8.1.4.**

JBLE – Langley is on the lower Virginia Peninsula, between the Northwest Branch and Southwest Branch of the Back River, a tributary of the Chesapeake Bay. The land occupied by the installation lies entirely within the Lynnhaven-Poquoson watershed. The surface water surrounding JBLE – Langley is brackish to saline and occurs in an estuarine setting. The Back River, Brick Kiln Creek, New Market Creek, and Tabbs Creek provide drainage for the area. Brick Kiln Creek and the Northwest Branch of Back River are listed on the 2014 Impaired Waters list. These streams are considered impaired for recreation and shellfish consumption due to bacterial contamination (JBLE – Langley 2019a). Section I.D of the JBLE – Langley Municipal Separate Storm Sewer System (MS4) permit (No. VAR040140, effective 1 November 2018) requires the JBLE – Langley to prepare a Chesapeake Bay Total Maximum Daily Load Action Plan that demonstrates future plans that meet the required nutrient and suspended solids reductions. No drinking water intake systems exist on JBLE – Langley. JBLE – Langley's surface water features are depicted in **Figure 3-3.**

3.7.1.2 Groundwater

Groundwater is water that exists in the saturated zone beneath the earth's surface that collects and flows through aquifers. Groundwater is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial purposes. Groundwater is typically described by depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations. Groundwater quality and quantity are regulated under several Federal and state programs. Groundwater resources are regulated on the Federal level by the USEPA under the Safe Drinking Water Act (SDWA).

The USEPA's Sole Source Aquifer Program, authorized by the SDWA, further protects aquifers that are designated as critical to water supply and makes any proposed Federal or Federal financially assisted project that has the potential to contaminate the aquifer subject to USEPA review. The Virginia Department of Health Office of Drinking Water reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes) and sets standards for groundwater to protect human health.

JBLE – Langley does not conform to the regional groundwater model because of the extraordinary circumstances of the Chesapeake Bay Impact Crater (CBIC) during the depositional history of the Lower Virginia Peninsula (JBLE – Langley 2019a). The outer rim of the crater appears to act as a boundary and a mixing zone separating groundwater of high salinity inside the outer rim from fresher, lower-salinity water outside the outer rim. The result of the impact was the local removal of five water-bearing units beneath the area now occupied by JBLE – Langley and their replacement by impact-generated crater fill sediments (JBLE – Langley 2019a).

Beneath JBLE – Langley, the hydrogeologic units include, in descending order: the Water Table Aquifer, the Yorktown Confining Unit, the Yorktown-Eastover Aquifer, the Eastover-Calvert Confining Unit, and the Chickahominy-Piney Point Aquifer (Powars and Bruce 1999). Due to the loss of aquifers associated with the CBIC, the groundwater beneath JBLE – Langley is not a practical source of irrigation or potable water. An investigation based on available regional and JBLE – Langley-specific well data (JBLE – Langley 2019a) predicted that the water table aquifer could yield up to 35 gallons per minute (GPM).

This prediction was confirmed in 2004 when an exploratory production water well drilled at the JBLE – Langley golf course sustained a yield of 30 GPM. However, the water evacuated during the pump test proved too brackish to be used untreated for either irrigation or potable purposes (JBLE – Langley 2019a).

3.7.1.3 Wetlands

The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a

Figure 3-3. Surface Water Features at Joint Base Langley Eustis – Langley

prevalence of vegetation typically adapted to life in saturated soil conditions" (Environmental Laboratory 1987). Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328).

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat detention, and erosion protection. Wetlands are protected as a subset of WOTUS under Section 404 of the CWA. The term WOTUS has a broad meaning under the CWA and, besides navigable waters, incorporates deep-water aquatic habitats and wetlands. Section 404(b)(1) of the CWA directs the USEPA to develop guidelines for the placement of dredged or fill material (33 USC § 1341[b]). These guidelines, developed by USEPA, are known as the "404(b)(1) Guidelines" and are located at 40 CFR 230. The stated purpose of the guidelines is to "restore and maintain the chemical, physical, and biological integrity of waters of the US through the control of discharges of dredged or fill material" (40 CFR 230.1[a]). Federal protection of wetlands is promulgated under EO 11990, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. This order directs Federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. In Virginia, activities occurring within a wetland are regulated by both the VDEQ and the USACE.

The most recent wetland delineation for JBLE – Langley was accomplished by USACE in February 2013. The delineation classified JBLE – Langley's wetlands following the Cowardin classification system (Cowardin et al. 1979). Jurisdictional wetlands are those wetlands subject to regulatory protection under Section 404 of the CWA.

Wetlands adjacent to the airfield at JBLE – Langley, classified as jurisdictional by the USACE, encompass approximately 40 acres, of which 19 acres have already been impacted (JBLE – Langley 2021) (**Figure 3-4**). The remaining 21 acres will be impacted and mitigated under USACE permit #NAO-2017-00574/VMRC# 17-V0458, a permit that was obtained for a previously examined airfield drainage project and that includes compensatory mitigation to ensure impacts are below the level of significance.. Of the approximate 40 acres, 2.28 acres are tidal emergent wetlands, 29.86 acres are nontidal emergent wetlands, 6.1 acres are tidal ditch, and 1.45 acres are nontidal ditch.

3.7.1.4 Stormwater Drainage

Stormwater is surface water generated by precipitation events, that may percolate into permeable surficial sediments or flow across the top of impervious or saturated surficial areas, a condition known as runoff. Stormwater is an important component of surface-water systems because of its potential to introduce sediments and other contaminants that could degrade surface waters, such as lakes, rivers, or streams. Proper management of stormwater flows, which can be intensified by high proportions of impervious surfaces associated with buildings, roads, and parking lots, is important to the management of surface water quality and natural flow characteristics.

The USEPA delegated authority to VDEQ to administer its own NPDES permitting program (VPDES) though the VAG87/VPDES permit process for wastewater and stormwater discharge associated with industrial activity, construction activity, and MS4 activity. These storm sewer systems include drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains owned and/or operated by a Federal, state, city, or other public body entity that has jurisdiction over discharges to surface waters and stormwater.

JBLE – Langley is served by a stormwater drainage system of pipes, box culverts, and open ditches that discharge to the Back River and its tributaries: Tide Mill Creek, Brick Kiln Creek, and Tabbs Creek. Surface water also drains directly to these water bodies. Because of the flat relief of the area, standing water accumulates during heavy storm events. JBLE – Langley has 24 permitted stormwater outfalls

Figure 3-4. Jurisdictional Wetlands at Joint Base Langley Eustis – Langley

under the General Industrial Stormwater Permit VAR052285. JBLE – Langley coordinates with the VDEQ if a permit modification is needed to implement any proposed Base project. The 633 Civil Engineer Squadron (CES)/Environmental maintains a SWPPP that addresses pollution control measures and management strategies for its industrial-related (i.e., aircraft) stormwater discharges. This plan is a requirement under the VPDES stormwater discharge permit and requires the assessment of stormwater outfalls (with current monitoring requirements), outdoor material storage and usage areas, and existing materials management practices and an annual erosion and sediment control survey (JBLE – Langley 2019a).

3.7.2 Environmental Consequences

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. Adverse impacts on water resources would occur if the proposed or alternative actions (1) reduce water availability or supply to existing users, (2) overdraft groundwater basins, (3) exceed safe annual yield of water supply sources, (4) adversely affect water quality, (5) endanger public health by creating or worsening health hazard conditions, or (6) violate established laws or regulations adopted to protect water resources.

3.7.2.1 Alternative 1

Impacts on surface water and wetlands were previously analyzed in the EA for Airfield and Drainage Projects at Joint Base Langley – Eustis, February 2021 (JBLE – Langley 2021), which is hereby incorporated by reference. Removal of all surface water features and wetlands within the airfield has been permitted by the USACE under permit #NAO-2017-00574/VMRC# 17-V0458, with a timeline of completion ending 21 June 2028. All work in the wetlands would be conducted in accordance with the permit that was obtained for a previously examined airfield drainage project, including all terms and conditions, which include compensatory mitigation to ensure impacts are below the level of significance. Alternative 1 would be implemented in conjunction with or after Phases 2 and 3 of the previously examined airfield drainage project. Included in that previous project is the filling of airfield wetlands that might be impacted by Alternative 1 (**Figure 3-5**); mitigation for that project includes the purchase of wetland credits. Alternative 1 would result in approximately 30.17 acres of impervious surfaces, which could increase stormwater flow and erosion potential and decrease infiltration rates for groundwater recharge. All stormwater management would be in accordance with state regulations (VDEQ stormwater requirements 9VAC25-870-66 and 9VAC25-870-63; VPDES) and the Federal Energy Independence and Security Act, and the implementation of a SWPPP. This SWPPP would describe BMPs and erosion and sediment control measures. Installation of new stormwater management structures or improvement of existing stormwater management structures would include flat-bottom swales, utilization of existing slot drains, wet well storage, and use of an existing pump station to direct stormwater into a controlled pond (see **Figure 2-1**). In addition to implementation of a SWPPP, DAF may implement project-specific BMPs or purchase nutrient credits, as applicable, to meet stormwater management requirements.

Short-term, minor, adverse impacts on stormwater drainage and ground water could occur from an increase in impervious surface. There would be negligible long-term adverse impacts on surface water and stormwater management from increased runoff. Long-term beneficial impacts would result from improved stormwater management structures.

3.7.2.2 Alternative 2

Under Alternative 2, adverse effects on water resources would be similar to, but slightly more than, those described for Alternative 1 because Alternative 2 would increase the amount of impervious surface created along the taxiways and runway compared to Alternative 1 (**Figure 3-6**). Alternative 2 would

Affected Environment and Environmental Consequences

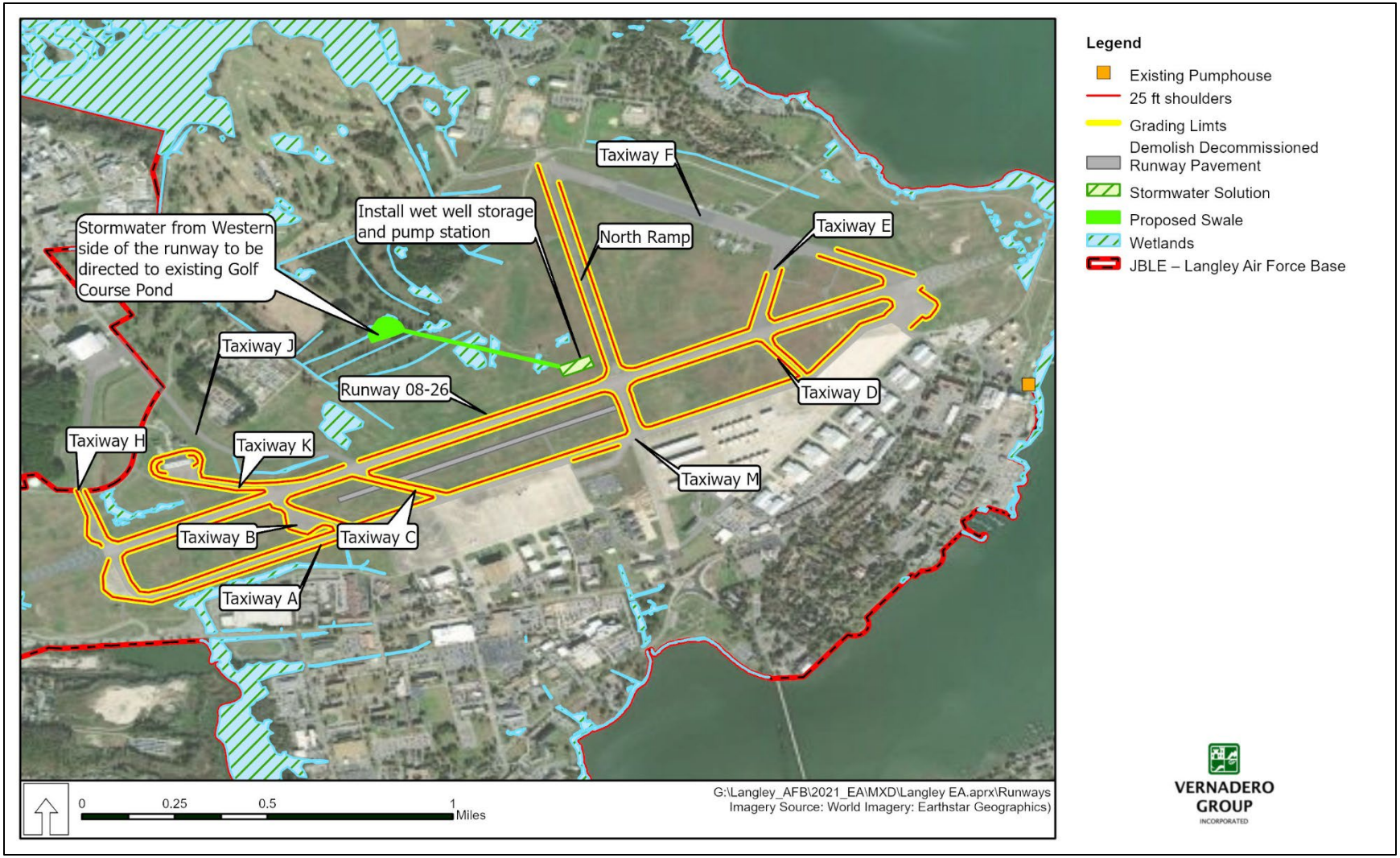

Figure 3-5. Alternative 1 and Jurisdictional Wetlands at Joint Base Langley Eustis – Langley

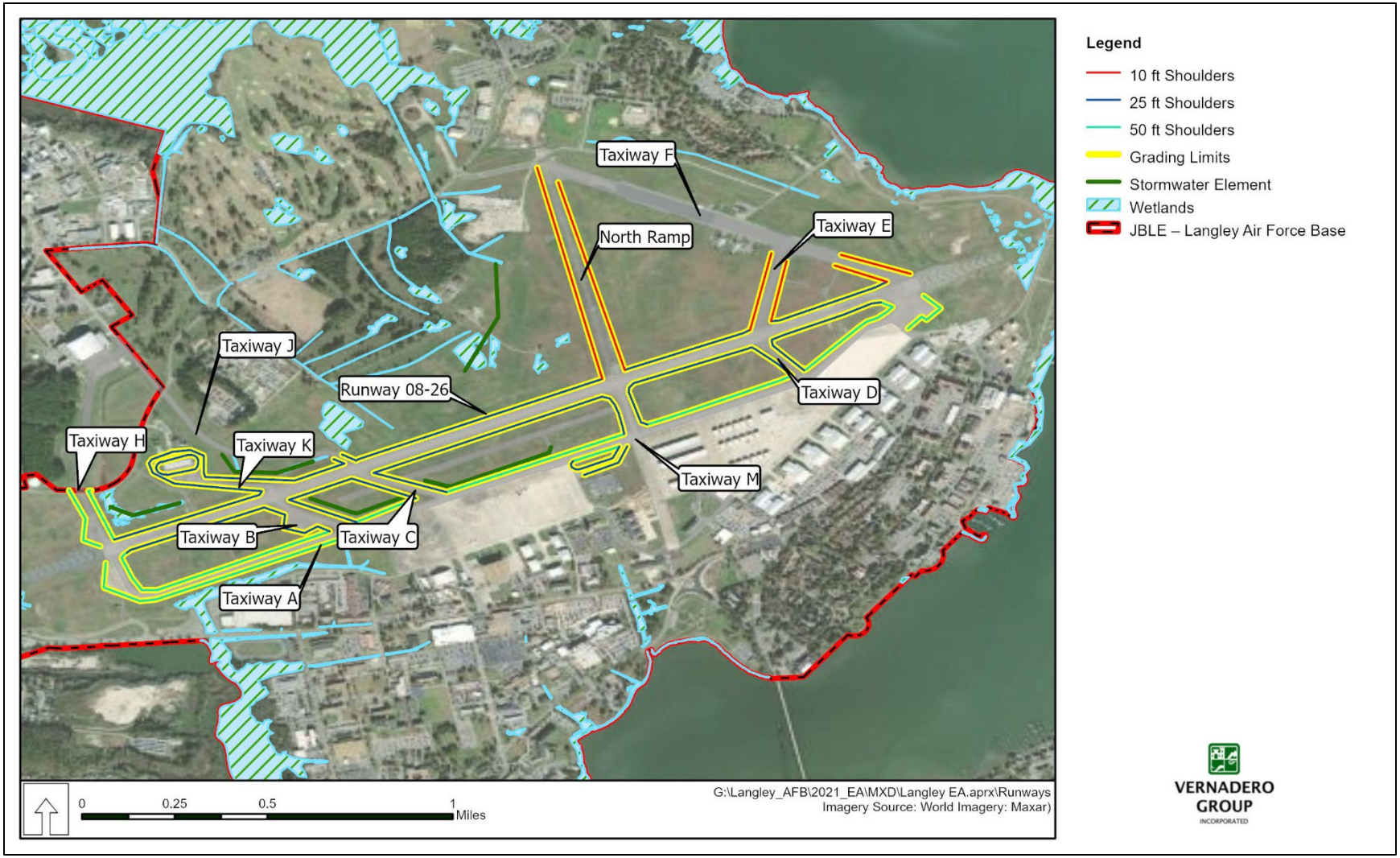

Figure 3-6. Alternative 2 and Jurisdictional Wetlands at Joint Base Langley Eustis – Langley

result in the construction of 10-, 25-, and 50-foot-wide paved shoulders on various sections of runway and taxiway.

Stormwater management practices include removal of existing slot drains and installation of new slot drains, installing two areas of underground filtration for water quality. Removal of all surface water features and wetlands within the airfield associated with Alternative 2 (see **Figure 3-6**) has been permitted and mitigated as described in Alternative 1. Alternative 2 would be implemented in conjunction with or after Phases 2 and 3 of the previously examined airfield drainage project.

3.7.2.3 Cumulative Effects

Neither Alternative 1 nor Alternative 2 would result in significant cumulative long-term adverse impacts on water resources. Potential impacts on water resources from Alternative 1 or Alternative 2 are negligible to minor on their own. When added to impacts on water resources from the other reasonably foreseeable future actions identified in **Appendix B,** Alternative 1 or Alternative 2 would have a beneficial impact on stormwater management, but it would have a significant, adverse, long-term impact on wetlands and surface water. These actions are permitted, mitigated, and discussed in the 2021 Final EA for Airfield and Drainage Projects at JBLE – Langley (2021).

3.7.2.4 No Action Alternative

Under the No Action Alternative, the proposed construction of taxiways and shoulders for Runway 08-26 at JBLE – Langley would not proceed. Stormwater control structures would remain in poor condition and continue to deteriorate. FOD potential could increase, further reducing flight safety.

3.8 BIOLOGICAL RESOURCES

Biological resources include native or invasive plants and animals, sensitive and protected floral and faunal species, and the habitats, such as wetlands, forests, and grasslands, in which they exist. Habitat can be defined as the resources and conditions in an area that support a defined suite of organisms. The following is a description of the primary Federal statutes that form the regulatory framework for the evaluation of the potential effect on biological resources.

3.8.1 Endangered Species Act

The ESA of 1973 (16 USC § 1531, et seq.) established protection over, and conservation of, threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plant and animal species listed as threatened, endangered, or special status by the USFWS and the NOAA Fisheries. Under the ESA (16 USC § 1536), an “endangered species” is defined as any species in danger of extinction throughout all, or a large portion, of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. The USFWS maintains a list of species considered to be candidates for possible listing under the ESA. The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Although candidate species receive no statutory protection under the ESA, the USFWS encourages cooperative conservation efforts for these species because they may warrant future protection under the ESA.

Section 9 of the ESA prohibits the take of federally listed species. “Take” as defined under the ESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC § 1532(19)). Section 7 of the ESA prohibits any Federal agency from engaging in any action that is likely to "jeopardize" the continued existence of listed endangered or threatened species or that destroys or adversely affects the critical habitat of such species. Any Federal agency proposing an action that may adversely impact an endangered or threatened species must consult

with the USFWS or the NOAA Fisheries (on an informal or formal basis, as appropriate) before carrying out an action that would place a listed species and/or its critical habitat in jeopardy.

3.8.2 Migratory Bird Treaty Act

The MBTA of 1918 makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations. Per the MBTA, "take" is defined as to "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR 10.12). Migratory birds include nearly all species in the United States, with the exception of some upland game birds and nonnative species.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds,* requires all Federal agencies undertaking activities that may negatively impact migratory birds to follow a prescribed set of actions to further implement the MBTA.

The National Defense Authorization Act for fiscal year 2003 (Public Law 107-314, 116 Stat. 2458) provided the Secretary of the Interior the authority to prescribe regulations to exempt the Armed Forces of the US from the incidental take of migratory birds during authorized military readiness activities. Congress defined military readiness activities as all training and operation of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.

In December 2017, the US Department of the Interior issued M-Opinion 37050 (US Department of Interior 2017), which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the underlying purpose of that activity is not the take of a migratory bird. The USFWS interprets the M-Opinion to mean that the MBTA's prohibition on take does not apply when the take of birds, eggs, or nests occurs as a result of an activity, the purpose of which is not to take birds, eggs, or nests.

On 7 January 2021, the USFWS issued Final Rule (86 FR 1134), effective 8 February 2021, determining that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same, applies only to actions directed at migratory birds, their nests, or their eggs; however, the USFWS delayed the implementation of the final MBTA rule until 8 March 2021 in conformity with the Congressional Rule Act (86 FR 8715). On 4 October 2021, the USFWS published a Final Rule (86 FR 54642) revoking the 7 January 2021 Final Rule (86 FR 1134) that limited the scope of the MBTA. This Final Rule went into effect on 3 December 2021. With the publication of this rule, the USFWS returned to "implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent and long-standing agency practice prior to 2017."

3.8.3 Bald and Golden Eagle Protection Act

The BGEPA of 1940 (16 USC § 668 to 668c) states it is prohibited to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), alive or dead, or any part, nest, or egg thereof." "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb," and "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle's normal breeding, feeding or sheltering behavior, or nest abandonment by substantially interfering with the eagle's normal breeding, feeding or sheltering behavior." The BGEPA also prohibits activities around an active or inactive nest site that could result in an adverse impact on the eagle. A Proposed Rule (87 FR 59598, 50 CFR 13, 50 CFR 22), published 30 September 2022, has been initiated to expedite and simplify the permitting processes authorizing incidental take of eagles. Under this Proposed Rule, the take limit for golden eagles remains set at zero, unless offset with compensatory mitigation.

3.8.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 USC § 1801, et seq.), as amended by the Sustainable Fisheries Act in 1996, requires the identification and conservation of Essential Fish Habitat (EFH). EFH includes those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. This can include areas that were historically used by fish. Federal agencies are required to consult with the NOAA Fisheries and prepare an EFH Assessment if potential adverse effects on EFH are anticipated from the Proposed Action.

3.8.5 Existing Conditions

3.8.5.1 Regional Biological Setting

Vegetation

Most of the main base consists of managed lawns and landscaped areas with ornamental trees and shrubs surrounding residential and industrial development (JBLE – Langley 2019a). The two typical types of upland forests present on JBLE – Langley are maritime pine-hardwood forest and oak-pine forest. Maritime pine-hardwood forests are common on the Southeastern Coastal Plain along the estuarine marsh ecotone at lower elevations than other Coastal Plain upland communities. Oak-pine forests are uncommon on the base, occurring on hummocks in the Tabbs Creek area. The typical forested area on the base consists of loblolly pine (*Pinus taeda*), southern red oak (*Quercus falcata*), white oak (*Q. alba*), willow oak (*Q. phellos*), black cherry (*Prunus serotina*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), yellow poplar (*Liriodendron tulipifera*), and hickory (*Carya* spp.).

The proposed project area consists of established airport runways, industrial development, and adjacent managed lawn and landscaped areas.

Fauna

Mammal species present on JBLE – Langley are habitat generalists and are tolerant of disturbance, such as white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), Virginia opossum (*Didelphis virginiana*), and river otter (*Lontra canadensis*). Acoustic surveys conducted in 2019 identified a potential for 10 to 11 species of bats to be present on the base, including the species identified on JBLE – Eustis, such as the Brazilian free-tailed bat (*Tadarida brasiliensis*) (Carver 2019). Also identified at JBLE – Langley was the Rafinesque's big-eared bat (*Corynorhinus rafinesquii*).

Reptiles that have been observed on the base include the six-lined racerunner (*Cinemidophorus sexlineatus*), eastern hognose snake (*Heterodon platirhinos*), black racer (*Coluber constrictor*), canebrake rattlesnake (*Crotalus horridus*), diamondback terrapin (*Malaclemys terrapin*), and the black rat snake (*Pantheropis alleghaniensis*) (JBLE – Langley 2019a). Common amphibians on JBLE – Langley include the American bullfrog (*Lithobates catesbeianus*), the green frog (*L. clamitans*), southern leopard frog (*L. sphenocephalus*), green tree frog (*Hyla cinerea*), and squirrel tree frog (*H. squirella*).

More than 150 species of birds have been observed on or near JBLE – Langley during surveys (JBLE – Langley 2019a). Songbirds and perching birds observed include species such as savannah sparrow (*Passerculus sandwichensis*), blue jay (*Cyanocitta crista*), American crow (*Corvus brachyrhynchos*), northern cardinal (*Cardinalis cardinalis*), Carolina wren (*Thyothorus ludovicianus*), and pine warbler (*Dendroica pinus*). Shorebirds observed include black-bellied plover (*Pluvialis squatarola*), semipalmated plover (*Charadrius semipalmatus*), American oystercatcher (*Haematopus palliates*), greater yellowlegs (*Tringa melanoleuca*), willet (*Catoptrophorus semipalmatus*), upland sandpiper (*Bartramia longicauda*), and sanderling (*Calidris alba*). Common waterfowl observed include canvasback (*Aythya valisineria*), ruddy duck (*Oxyura jamaicensis*), greater scaup (*Aythya marila*), lesser

scaup (*A. affinis)*, bufflehead (*Bucephala islandica*), common goldeneye (*B. clangula*), Canada goose (*Branta canadensis*), and mallard (*Anas platyrhynchos*).

Habitat suitable for bald eagle foraging, roosting, and/or nesting occurs among the loblolly pines on the northern side of the base, approximately 1 mile from the project area. Recent surveys indicate that foraging by bald eagles occurred to a limited extent within creeks and marshes of JBLE – Langley and on Bethel Reservoir, approximately 2 miles from the project area. The uniform age/size structure of loblolly pine stands may limit the use of the base as nesting or roosting habitat (JBLE – Langley 2019a). One bald eagle nest has been documented in the forested north marsh on the main base, approximately 1 mile from the project area, and several other nests have been documented within 3 miles of the base. For bald eagle nests that may be established near the airfield, JBLE – Langley undertakes nonlethal depredation actions to move the nest away from the airfield (JBLE – Langley 2019a, 2019b). The USFWS has issued a permit (permit # MB237450-0) to JBLE – Langley to remove inactive and active bald eagle nests that do not contain eggs, chicks, or fledglings, located within 1 mile of Felker Army Airfield Heliport. This permit is for purposeful eagle/eagle nest take to address risk to human and eagle health and safety and does not authorize lethal take, trapping, or injury of eagles. In Virginia, golden eagles are found primarily wintering along the Appalachian Mountains, amongst small forest openings along ridgelines (eBird 2021, Virginia Department of Game and Inland Fisheries [VDGIF] 2015). Suitable habitat for golden eagles includes open and semi-open landscapes such as savanna, sparse woodland, and prairies, in hilly and/or mountainous terrain proximate to suitable nesting sites (VDGIF 2015). Golden eagles have been observed along Virginia's coastline; however, none have been observed on JBLE – Langley and suitable habitat on the installation is not present. Fish commonly found in the estuarine waters surrounding JBLE – Langley include species such as anchovy (*Anchoa* spp.), silver perch (*Bairdiella chrysoura*), spotted sea trout (*Cynoscion nebulosus*), spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic silverside (*Menidia menidia*), striped bass (*Morone saxatilis*), white mullet (*Mugil curema*), pigfish (*Orthaopristis chrysoptera*), and summer flounder (*Paralichthys dentatus*) (JBLE – Langley 2019a). Blue crab (*Callinectes sapidus*) is also commonly found in tidal waters around the base. Other aquatic species include the fiddler crab (*Uca* spp.), which is an important food source for a variety of wildlife, as well as the eastern oyster (*Crassostrea virginica*) and the hard clam (*Mercenaria mercenaria*).While there is no designated EFH within the project's area of influence, the Back River, directly adjacent to JBLE – Langley, is designated as an EFH by NOAA Fisheries.

Invasive Species

Twenty-one invasive vertebrate and invertebrate species have been identified at JBLE – Langley (Langley Air Force Base 2009). The primary invasive plant species of concern are common reed (*Phragmites australis*), Japanese honeysuckle (*Lonicera japonica*), privet (*Ligustrum* spp.), and Japanese stiltgrass (*Microstegium vimineum*) (JBLE – Langley 2019a). An inventory of common reed was conducted in 2014, and herbicide treatment of 150 acres was conducted in 2017 and most recently in 2020 (JBLE – Langley 2019c, 2020b). Treatment for common reed occurs only when support through contract funding was available. As such, the extent of common reed has expanded. Invasive vertebrate species include nutria (*Myocastor coypus*) and European starling (*Sturnus vulgaris*), as well as mute swan (*Cygnus olor*) and snakehead fish (*Channa* spp.). Invasive invertebrates identified include Asian tiger mosquito (*Aedes albopictus*), emerald ash borer (*Agrilus planipennis*), gypsy moth (*Lymantria dispar*), and fire ant (*Solenopsis invicta* [*S. wagneri*]) (Langley Air Force Base 2009).

Threatened and Endangered Species and/or Species of Concern

A list of the federally listed species that could potentially occur in the ROI was obtained from the USFWS IPaC website (USFWS 2023; **Appendix C**), Virginia Department of Wildlife Resources (VDWR), Fish and Wildlife Information Service (FWIS) (VDWR 2023), and JBLE – Langley Integrated

Natural Resources Management Plan (2019a). The Federal and state listed species with the potential to be present on or near and those documented on JBLE – Langley are provided in **Table 3-5.**

Table 3-5. Federal and State Listed Species Documented or with the Potential to Occur on or adjacent to Joint Base Langley-Eustis – Langley Air Force Base, Virginia

Species	Federal Status	State Status	JBLE – Langley Occurrence
Birds			
Eastern Black Rail (*Laterallus jamaicensis* ssp. *jamaicensis*)	T	E	Potential
Piping Plover (*Charadrius melodus*)	T	T	Potential [1]
Red Knot (*Calidris canutus rufa*)	T	T	Observed
Roseate Tern (*Sterna dougallii)*	E	E	Potential [1]
Loggerhead Shrike (*Lanius ludovicianus*)	--	T	Potential [1]
Loggerhead Shrike, Migrant (*L. ludovicianus migrans*)	--	T	Potential [1]
Peregrine Falcon (*Falco peregrinus*)	--	T	Potential [1]
Gull-Billed Tern (*Sterna niloticai*)	--	T	Observed
Wilson's Plover (*Charadrius wilsonia*)	--	E	Potential
Henslow's Sparrow (*Ammodramus henslowii*)	--	T	Potential [1]
Mammals			
Northern Long-Eared Bat (*Myotis septentrionalis*)	E	T	Acoustic [2]
Indiana Bat (*Myotis sodalis*)	E	E	Acoustic [3]
Little Brown Bat (*Myotis lucifugus*)	--	E	Acoustic
Tricolored Bat (*Perimyotis subflavus*)	Proposed E	E	Potential [4]
Rafinesque's Eastern Big-Eared Bat (*Corynorhinus rafinesquii macrotis*)	--	E	Acoustic
West Indian Manatee (*Trichechus manatus*)	E	E	Unlikely [1]
Reptiles			
Kemp's (= Atlantic) Ridley Turtle (*Lepidochelys kempii*)	E	E	Unlikely [1]
Hawksbill Turtle (*Eretmochelys imbricata*)	E	E	Unlikely [1]
Leatherback Turtle (*Dermochelys coriacea*)	E	E	Unlikely [1]
Loggerhead Turtle (*Caretta caretta*)	T	T	Unlikely [1]
Green Turtle (*Chelonia mydas*)	T	T	Unlikely [1]
Canebrake Rattlesnake (*Crotalus horridus*)	--	E	Potential
Amphibians			
Eastern Tiger Salamander (*Ambystoma tigrinum*)	--	E	Unlikely [5]
Mabee's Salamander (*Ambystoma mabeei*)	--	T	Unlikely [5]
Fish			
Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)	E	E	Potential
Shortnose Sturgeon (*Acipenser brevirostrum*)	E	E	Potential
Plants			
Harper's Fimbristylis (*Fimbristylis perpusilla*)	--	E	Unlikely [5]
Insects			
Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*)	T	T	Unlikely
Monarch Butterfly (*Danaus plexippus*)	C	--	Observed

Species	Federal Status	State Status	JBLE – Langley Occurrence
Rusty Patched Bumblebee (*Bombus affinis*)	E	--	Unlikely [6]

Sources: JBLE – Langley 2019a; USFWS 2023; VDWR 2023
JBLE – Langley – Joint Base Langley-Eustis, Langley Air Force Base; **T** – threatened; **E** – endangered; **C** – candidate

[1] These species were only identified in the VDWR FWIS (VDWR 2023) as potentially occurring within a 3-mile radius around the base centers, but they are not identified in the base Integrated Natural Resource Management Plans or the USFWS IPaC website (for federally listed species).

[2] Due to weak call characteristics recorded during acoustical surveys, confidence in the positive identification of the northern long-eared bat is low; therefore, presence of this species should be categorized as possible but unconfirmed.

[3] Documented acoustically during past surveys; however, the most recent 2019 acoustic and mist-net surveys did not identify the presence of the Indiana bat.

[4] The tricolored bat has the potential to occur on main base JBLE - Langley, but it was only observed visually at the Langley Big Bethel Reservoir during the 2019 acoustic and mist-net surveys.

[5] These species were only identified in the VDWR FWIS (VDWR 2023) as potentially occurring within a 3-mile radius of the base; however, multiple surveys have not documented these species on the base, and optimal habitat is not found on main base JBLE - Langley.

[6] Listed in the 2017 *US Air Force Pollinator Conservation Reference Guide* as possibly present; however, its distribution in Virginia appears to be in counties north and west of the tidewater region of southeast Virginia (82 FR 3186, *Endangered and Threatened Wildlife and Plants; Endangered Species Status for Rusty Patched Bumblebee; Final Rule*).

The red knot (*Calidris canutus rufa*) has been documented on the base shoreline (JBLE – Langley 2019a). This species may temporarily forage in this area as a transient during migration. The eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*) may use the coastal marshes on and near JBLE – Langley but has not been documented. This species is a small, secretive bird and is limited to areas with dense wetland vegetation. There is no suitable nesting or foraging habitat on JBLE – Langley for the piping plover (*Charadrius melodus*) or roseate tern (*Sterna dougallii*).

State listed birds that may be present include the peregrine falcon (*Falco peregrinus*; delisted from the Federal endangered species list), gull-billed tern (*Sterna nilotica*), Wilson's plover (*Charadrius wilsonia*), Henslow's sparrow (*Ammodramus henslowii*), and loggerhead shrike (*Lanius ludovicianus*), including the migrant subspecies (*L. l. migrans*). JBLE – Langley may be used by these species for foraging or roosting, but none are known to nest on the base. The gull-billed tern has been documented on the main base only as a transient (JBLE – Langley 2019a).

Surveys have documented the potential presence of five species of Federal and state listed bats on the base, which include the northern long-eared (*Myotis septentrionalis*), Indiana (*Myotis sodalis*), little brown (*Myotis lucifugus*), and tricolored (*Perimyotis subflavus*) bats, as well as the state endangered Rafinesque's eastern big-eared bat (*Corynorhinus rafinesquii macrotis)*. Of the bats identified on JBLE – Langley, only the tricolored bat has been netted, which occurred on the Big Bethel Reservoir (Carver 2019). Acoustic surveys did indicate northern long-eared bats occur on the main base, but because the call characteristics were not strong enough, the confidence in the positive identification of northern long-eared bat was low, and the presence of this species is considered as possible but unconfirmed. The Indiana bat was identified during acoustic modeling in past surveys but was not identified during the most recent survey in 2019.

The VDWR FWIS identifies the West Indian manatee as having the potential to occur near JBLE – Langley; however, Virginia is considered at the species' extralimital range, and records of its occurrence in the Chesapeake Bay are rare; the West Indian manatee was last documented in 2017 in the York River (Virginia Institute of Marine Sciences 2017).

The USFWS IPaC list indicates that five species of federally listed sea turtle have the potential to occur in the waters around JBLE – Langley. While all these species have been occasionally documented in the waters around Hampton, Virginia, JBLE – Langley conducted surveys for sea turtles from 2016 to 2017 and did not document nesting or presence (JBLE – Langley 2019a; Virginia Herpetological Society 2023). In addition, surveys on the main JBLE – Langley base from 2016 to 2017 did not document the presence of the other reptiles and salamanders with the potential to occur on the base.

The state listed canebrake rattlesnake (*Crotalus horridus*) has the potential to occur on JBLE – Langley, but it has not been documented, and optimal habitat on the main base is limited. This species prefers mature hardwood and mixed hardwood-pine forests, cane thickets, and the ridges and glades of swampy areas (VDGIF 2011). Optimal habitat would also include numerous logs and plentiful leaf litter and humus.

Both the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) have the potential to occur in the York River and its tributaries. The York River is also designated as critical habitat for the Atlantic sturgeon. There is no designated critical habitat for the shortnose sturgeon.

While identified as having the potential to occur on JBLE – Langley, optimal habitat for the northeastern beach tiger beetle *(Cicindela dorsalis dorsalis*), which includes broad sandy beaches, is not found on JBLE – Langley (JBLE – Langley 2019a). In addition, while the northeastern beach tiger beetle has been documented along the shoreline of the Plumtree Island National Wildlife Refuge (USFWS 1994), this area is located over 2 miles from the ROI. Similarly, the rusty patched bumble bee is identified in the 2017 *US Air Force Pollinator Conservation Reference Guide* as possibly being present on JBLE – Langley (DAF 2017). However, the current distribution of the rusty patched bumble bee does not include the tidewater region of southeast Virginia. Surveys have identified the monarch butterfly (*Danaus plexippus*) on JBLE – Langley, and monarch host milkweed species (*Asclepias* spp.) have been documented near wetlands located 0.4 mile from the project area, adjacent to the golf course (A. Garcia, personal communication).

Other state listed species with the potential to occur on JBLE – Langley are Harper's fimbristylis (*Fimbristylis perpusilla*), eastern tiger salamander (*Ambystoma tigrinum*), and Mabee's salamander (*A. mabeei*) (JBLE – Langley 2019a). These species have not been documented, and optimal habitat for these species is not located within the project area (JBLE – Langley 2019a).

3.8.6 Environmental Consequences

Evaluation criteria for potential impacts on biological resources are based on (1) importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) proportion of the resource that would be affected relative to its occurrence in the region, (3) sensitivity of the resource to the proposed activities, and (4) duration of potential ecological ramifications. The impacts on biological resources are adverse if species or habitats of high concern are negatively affected over relatively large areas. Impacts are also considered adverse if disturbances cause reductions in population size or distribution of a species of high concern.

3.8.6.1 Alternative 1

Under Alternative 1, areas limited to within 25 feet of existing runway and taxiway shoulder pavement would be impacted. Installation of flat bottom swales on each side of the runway, and a wet well storage and pump station on the airfield that would direct stormwater from the runway to the existing golf course pond. Habitat adjacent to the project area is limited to managed lawns, runway surfaces, decommissioned pavement, and man-made drainage ditches.

Vegetation

Implementation of the Proposed Action would require the removal of an estimated 11.27 acres of turf grass adjacent to runway pavement. No adverse impacts on native vegetation would occur.

Fauna

Implementation of Alternative 1 may result in short-term, indirect, minor adverse impacts on some fauna. Construction projects may affect breeding songbirds utilizing urban greenspaces adjacent to proposed construction.

Invasive Species

Ground disturbance could impact invasive plants, potentially facilitating opportunities for expansion. All construction projects would implement BMPs, such as reseeding disturbed areas with native vegetation, to reduce the spread of invasive species.

Threatened and Endangered Species and/or Species of Concern

While it has not been documented on JBLE – Langley, habitat for the year-round resident loggerhead shrike is found on the base and includes open areas with short vegetation, scattered shrubs and low trees, pastures, riparian areas, and golf courses. It is unlikely that loggerhead shrikes would be adversely impacted.

The potential for adverse impacts on bats would be minor. Bats may forage for insects over airfields; however, none of the typical construction activities would impact bats foraging in the area and there is no roosting habitat or hibernacula in the project area. Any construction activities during the night may disrupt bats foraging within the airfield.

No impacts on the canebrake rattlesnake would occur; there is no suitable habitat within the area of the Proposed Action.

No impacts on the monarch butterfly would occur; there is no suitable habitat within the area of the Proposed Action.

No impacts on sea turtles, shortnose sturgeon, and Atlantic sturgeon would occur; adherence to the SWPPP and applicable BMPs would minimize impacts on soils and would prevent any adverse impacts on water quality.

DAF has made a *no effect* determination for the listed sea turtles, listed bat species, red knot, roseate tern, eastern black rail, monarch butterfly, West Indian manatee, shortnose sturgeon, Atlantic sturgeon, and rusty patched bumblebee. The Section 7 self-certification package was completed through the USFWS Virginia Ecological Services Field Office's online project review process during preparation of this EA (**Appendix C**).

3.8.6.2 Alternative 2

Under Alternative 2, impacts on biological resources would be similar to those described for Alternative 1. Taxiways A and H would have 50-foot shoulders added to them, and the North Ramp, Taxiway E, and a small portion of taxiway F would only be impacted by a 10-foot shoulder. Further, Taxiways B, C, D, K, M, and Runway 08-26 would be impacted by the same 25-foot shoulder as for Alternative 1.

3.8.6.3 No Action Alternative

Under the No Action Alternative, no modification of runway and taxiway shoulders, stormwater elements or underground filtration would occur. Biological resources would not be adversely affected under the No Action Alternative.

3.8.6.4 Cumulative Effects

Neither Alternative 1 nor Alternative 2 would result in significant, cumulative, long-term, adverse impacts on biological resources as potential impacts from both alternatives would be negligible to minor on their own. When added to impacts on biological resources from the other reasonably foreseeable future actions identified in **Appendix B,** Alternative 1 or Alternative 2 would not result in significant cumulative, long-term, adverse impacts on biological resources.

3.9 CULTURAL RESOURCES

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources are protected and identified under several Federal laws and EOs. NEPA and CEQ regulations require establishments and agencies to consider how actions they implement affect all aspects of the human environment because humans relate to their environment through their respective cultures. The environment can include natural resources that are used in cultural contexts, resources that are built by cultural groups, and social or economic institutions. Cultural resources include the following subcategories:

- Archaeological (i.e., prehistoric, or historic sites where human activity has left physical evidence of that activity, but no structures remain standing).
- Architectural (i.e., buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance).
- Traditional Cultural Properties (resources of traditional, religious, or cultural significance to Native American tribes and other communities).

Significant cultural resources are called historic properties and are listed on the National Register of Historic Places (NRHP) or have been determined to be eligible for listing. To be eligible for the NRHP, historic properties must be 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance, and meet at least one of four criteria (National Park Service 1997):

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

Properties that are less than 50 years old can be considered eligible for the NRHP under Criterion Consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP Criteria for Evaluation (Criterion A, B, C, or D).

The term "historic property" refers to National Historic Landmarks, NRHP-listed, and NRHP-eligible cultural resources.

Federal laws protecting cultural resources include the Archaeological and Historic Preservation Act of 1960 as amended, the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the NHPA, as amended through 2016, and associated regulations (36 CFR Part 800). The NHPA requires Federal agencies to consider the effects of Federal undertakings on historic properties prior to deciding or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the Section 106 consultation process, as set forth in 36 CFR Part 800. Section 106 of the NHPA also requires agencies to consult with federally recognized Indian tribes with a vested interest in the undertaking.

Section 106 of the NHPA requires all Federal agencies to seek to avoid, minimize, or mitigate adverse effects on historic properties (36 CFR Part 800.1[a]). For cultural resource analysis, the Area of Potential Effects (APE) is used as the ROI. APE is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist," (36 CFR Part 800.16[d]) and thereby diminish their historic integrity. The APE for direct and indirect effects for this project include a 50-foot buffer around all grading, staging, and associated activities as identified in Chapter 2, associated with proposed shoulder construction for Runway 08-26 and its taxiways (**Figure 3-7**).

3.9.1 Existing Conditions

JBLE – Langley is located in Tidewater Virginia's Hampton Roads region, in the city of Hampton. The area that was to become Langley Field, purchased in 1916, was the first land acquired by the United States government for aviation purposes (Cook 2000).

The approximately 845-acre Langley Field Historic District encompasses the easternmost portion of JBLE – Langley, bounded to the east by the confluence of the northwest and southwest branches of the Back River. The district is bounded to the west by the base's North Ramp. A total of 312 resources, including housing, hangars and industrial and administrative buildings, contribute to the significance of the district. A portion of the Langley Field Historic District overlaps the current APE encompassing the existing runway and taxiways and a small area of undeveloped airfield (specifically the North Ramp and Taxiways M, F, D, and E). None of the features in the APE are identified as contributing resources to the historic district (JBLE – Langley 2017).

There are no significant archaeological resources in the APE. Site 44HT0117, the Airfield Site, is centered in the grassy area between the North Ramp and Taxiways E and F. Recommended as potentially eligible for inclusion in the NRHP in the JBLE – Langley Integrated Cultural Resources Management Plan (JBLE – Langley 2017), a Phase II evaluation conducted in December 2022 determined that cultural material associated with the site are in disturbed, secondary fill contexts, and the site has no archaeological integrity (draft technical report in development).

Traditional cultural properties and sacred sites are a special class of cultural resources that require specialized expertise in their identification and assessment. The base is not in possession of prehistoric human remains, funerary objects, sacred objects, or objects of cultural patrimony. No known traditional cultural resources or sacred sites have been identified at JBLE – Langley (JBLE – Langley 2017). Ten federally recognized Native American tribes have been contacted regarding their knowledge of traditional cultural resources and sacred sites within the APE, including the Catawba Indian Nation, Cherokee

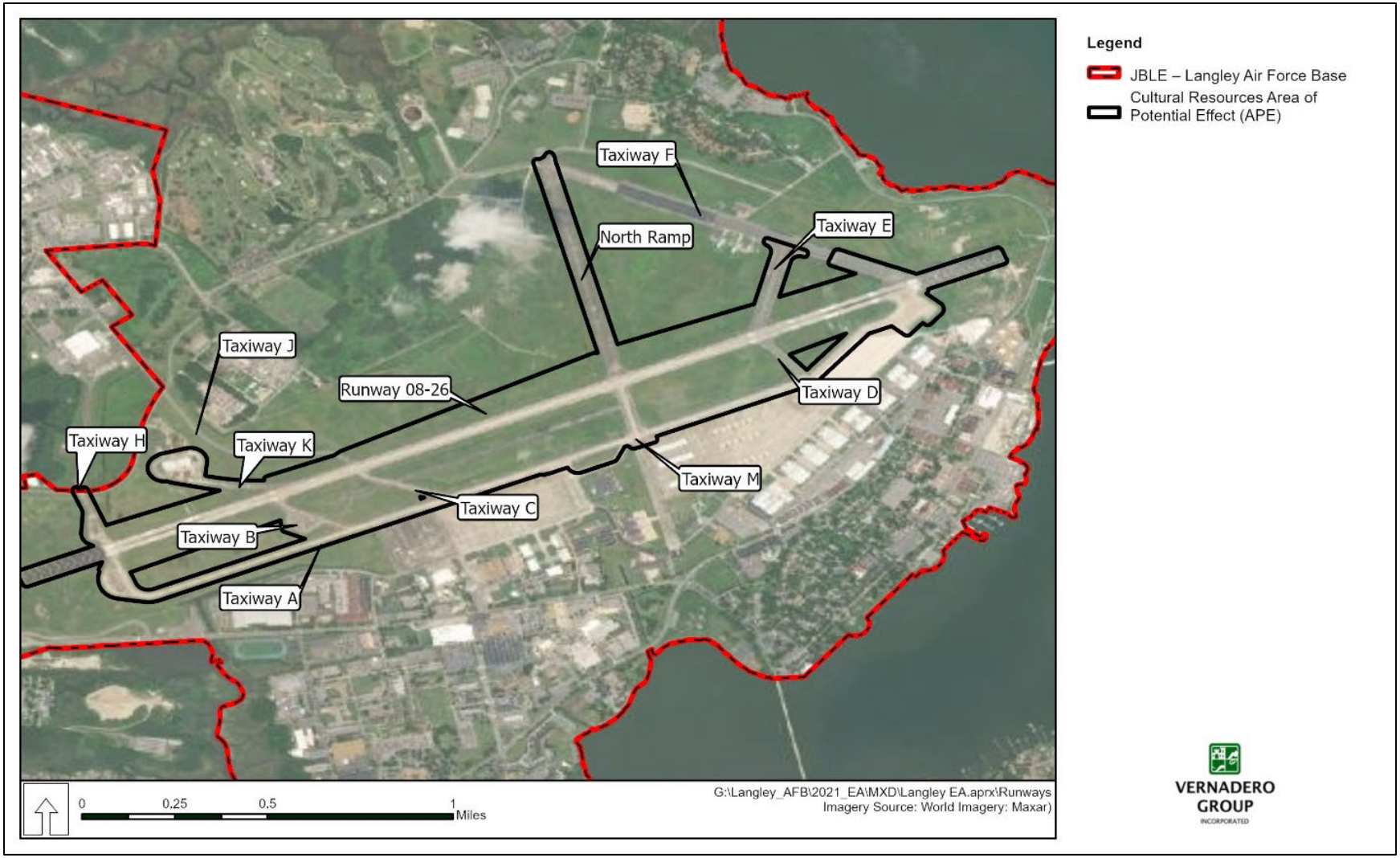

Figure 3-7. Cultural Resources Area of Potential Effect for Joint Base Langley-Eustis – Langley

Nation, Chickahominy Indian Tribe, Chickahominy Indians – Eastern Division, Delaware Nation, Oklahoma, Delaware Tribe of Indians, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Monacan Indian Nation, Muscogee (Creek) Nation, and the Pamunkey Indian Tribe (Tribal Data Assessment Tool 2023).

3.9.2 Environmental Consequences

Effects on cultural resources may include physically altering, damaging, or destroying all or part of a resource or altering characteristics of the resource that make it ineligible for listing in the NRHP. Those effects can include introducing visual or audible elements that are out of character with the property or its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance. For this EA, an effect is considered adverse if it alters the integrity of a historic property (NRHP-listed or eligible archaeological sites or architectural resources) or if it has the potential to adversely affect traditional cultural properties and the practices associated with the property.

3.9.2.1 Alternative 1

The flightline has been extensively graded and developed over the greater than 100-year history of JBLE – Langley. Recent excavations in the grassy area between the North Ramp and nearby taxiways have confirmed that while subsurface cultural material may exist, it lacks all integrity and research value being recovered from disturbed, secondary, fill contexts. No traditional or sacred sites have been identified within the APE. Implementation of Alternative 1 would not result in adverse effects on significant architectural resources within the Langley Field Historic District, namely Runway 08-26, the North Ramp, and several associated taxiways. While these pavements are considered eligible and contributing resources to the Langley Field Historic District, proposed improvements to modernize would not diminish the look, feel, design, or overall integrity of these resources, or their ability to convey their significance. Therefore, per 36 CFR 800800.5, implementation of Alternative 1 would result in no adverse effect on historic properties. Coordination with the Virginia SHPO was initiated during preparation of this EA.

3.9.2.2 Alternative 2

Impacts on cultural resources under Alternative 2 would be the same as those described for Alternative 1. No traditional or sacred sites have been identified within the APE. Implementation of Alternative 2 would not result in adverse effects on architectural resources within the Langley Field Historic District. Coordination with the Virginia SHPO was initiated during preparation of this EA.

3.9.2.3 No Action Alternative

Under the No Action Alternative, the proposed construction of shoulders for Runway 08-26 and taxiways at JBLE – Langley would not occur. There would be no impact to cultural resources as no grading or other disturbance would occur.

3.9.2.4 Cumulative Effects

When combined with proposed projects on JBLE – Langley, the Proposed Action would have no reasonably foreseeable impacts on cultural resources and would not result in incremental or significant effects when combined with ongoing or reasonably foreseeable future actions. The flightline and surrounding area have been extensively developed over time using disturbed, secondary, and fill contexts.

3.10 SOCIOECONOMIC RESOURCES

Socioeconomic resources include the economic and sociological environments of the ROI surrounding JBLE – Langley. The socioeconomic ROI analyzed in this EA is the Virginia Beach – Norfolk – Newport News VA-NC Metropolitan Statistical Area, comprising 17 cities and counties and locally known as Hampton Roads. For comparative purposes, socioeconomic data also are presented for Virginia and the United States.

3.10.1 Existing Conditions

3.10.1.1 Population

The estimated population within the ROI in 2021 was 1,806,423 (US Census Bureau 2021a). The estimated population of Virginia was 8,642,274 (US Census Bureau 2021a) and that of the United States was 331,893,760 (US Census Bureau 2021a). JBLE – Langley has more than 20,000 military and civilian personnel working on the base and serves a greater population of more than 145,000 active duty, guard and reserve, family members, civilians, contractors, and retirees that reside in Hampton Roads (Langley Air Force Base (AFB) 2019; US Department of Defense Military OneSource 2023).

3.10.1.2 Employment

The average annual labor force within the ROI decreased approximately 3 percent from 2020 to 2021 (Bureau of Labor Statistics 2023). The labor force in Virginia during this same time period decreased approximately 2 percent, while the labor force of the United States increased slightly by 0.3 percent (Bureau of Labor Statistics 2023). Within the ROI, the annual unemployment rate was 4.5 percent in 2022, slightly higher than the Virginia state unemployment rate of 3.9 percent, but lower than the national unemployment rate of 5.4 percent (Bureau of Labor Statistics 2023).

The top five industries (based on employment by industry) within the ROI are government and government enterprises (including Federal military and civilian, state, and local employment); health care and social assistance; retail trade; accommodation and food services; and professional, scientific, and technical services. Together these industry sectors account for almost 60 percent of total employment within the ROI. The government and government enterprises sector accounted for the largest portion, accounting for approximately 23 percent of the ROI's employment (Bureau of Economic Analysis 2023). JBLE – Langley is part of the government sector and is a major contributor to the regional economy. In 2018, the DAF employed about 20,500 people (military and civilian) at the base, with an annual payroll of $1.2 billion and $169 million in local expenditures on operations and maintenance construction, utilities, and other goods and services. JBLE – Langley had a total economic impact of about $2.9 billion in fiscal year 2018 (Langley AFB 2019).

3.10.1.3 Income

The per capita personal income within the ROI in 2021 was $56,716 (Bureau of Economic Analysis 2022a), 86 percent of the Virginia state per capita personal income of $66,305 (Bureau of Economic Analysis 2022b), but 88 percent of the national per capita personal income of $64,143 (Bureau of Economic Analysis 2022c). The median household income within the ROI of $69,717 (US Census Bureau 2021a) was 87 percent of the Virginia median household income of $80,268 (US Census Bureau 2021b) but 98 percent of the national median household income of $70,784 (US Census Bureau 2021c).

3.10.1.4 Housing

JBLE – Langley family housing is made up of five communities with a total of 1,430 housing units (single family, duplex, fourplex, and six-plex homes) (Langley Family Housing 2023). The JBLE –

Langley Bethel Housing Area is located approximately 5 miles from the airfield. DAF also has dormitories for unaccompanied personnel and temporary housing at the Langley Inns on JBLE – Langley. The ROI has about 768,160 housing units (US Census Bureau 2021a) with a median value of $284,800, (US Census Bureau 2021a) less than Virginia's median home value of $330,600 (US Census Bureau 2021d) but more than the United States' median value of $281,400 (US Census Bureau 2021a). The gross median rent in the ROI was $1,232 dollars a month (US Census Bureau 2021a), less than the state gross median rent of $1,331 (US Census Bureau 2021d), but more than the national median gross rent of $1,191 (US Census Bureau 2021a). The median monthly owner costs for housing units with a mortgage were $1,706 for the ROI (US Census Bureau 2021a), less than the state median of $1,818 (US Census Bureau 2021d), but more than the national median of $1,672 (US Census Bureau 2021a).

3.10.2 Environmental Consequences

Potential impacts of a proposed action on socioeconomic resources are considered significant if the action would:

- Cause substantial gains or losses in population or the composition of the population;
- Cause extensive relocation or disruption of community businesses, creating an economic hardship for surrounding communities;
- Cause disequilibrium in the housing market such as severe housing shortages or surpluses, resulting in substantial property value changes; or
- Cause changes to accessibility of community services or change demands so the current system cannot accommodate the change.

3.10.2.1 Alternative 1

No significant adverse effects on socioeconomic resources would be expected under Alternative 1. Short-term, minor, beneficial economic effects would be expected. The Proposed Action would have a beneficial economic impact from employment, income, and business sales associated with construction activity. The impact would be minor relative to the size of the economy of the ROI and JBLE – Langley local and regional economic effect. If all proposed construction activities were implemented within a single 12-month period, the expenditures would amount to less than 5 percent of the base's annual total local expenditures. None of the proposed construction activities would require personnel changes at JBLE – Langley, so Alternative 1 would have no population effect or effect on the demand for housing or public services (e.g., public schools, emergency services, or healthcare).

3.10.2.2 Alternative 2

No significant adverse effects on socioeconomic resources would be expected under Alternative 2. The same short-term, minor, beneficial economic effects as Alternative 1 would be expected with implementation of Alternative 2. If all proposed construction activities were implemented within a single 12-month period, the expenditures would amount to less than 5 percent of the base's annual total local expenditures. None of the proposed construction activities would require personnel changes at JBLE – Langley, so Alternative 2 would have no population effect or effect on the demand for housing or public services (e.g., public schools, emergency services, or healthcare).

3.10.2.3 Cumulative Effects

The Proposed Action, in addition to past, present, and reasonably foreseeable future actions, would result in beneficial impacts on socioeconomic conditions associated with an increase in personnel assigned to the installation and their dependents which would be expected to increase annual expenditures in the local economy. Planned construction projects would add temporary construction jobs to the local economy.

Collectively, the substantial infrastructure projects would provide beneficial impacts on the local economy. Any potential cumulative effects of implementation of the proposed action with past, present, or future actions would result in less than significant impacts to socioeconomic conditions.

3.10.2.4 No Action Alternative

No effects on socioeconomic resources would occur under the No Action Alternative. The socioeconomic environment would remain unchanged when compared to existing conditions.

3.11 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued by President Clinton on 11 February 1994. The EO requires that Federal agencies take into consideration disproportionately high and adverse human health or environmental effects of Federal government decisions, policies, projects, and programs on minority and low-income populations and that the agencies identify alternatives that could mitigate those effects.

On 21 April 1997, President Clinton issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. The EO seeks to protect children from disproportionately incurring environmental health or safety risks. The EO recognizes that a growing body of scientific knowledge demonstrates that children might suffer disproportionately from environmental health and safety risks. These risks arise because children's bodily systems are not fully developed; children eat, drink, and breathe more in proportion to their body weight; their size and weight can diminish protection from standard safety features; and their behavior patterns can make them more susceptible to accidents. Based on these factors, President Clinton directed all Federal agencies to make it a high priority to identify and assess environmental health and safety risks that might disproportionately affect children. The President also directed all Federal agencies to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks. DAF complies with EO 13045 by incorporating these concerns into the decision-making process supporting JBLE – Langley policies, programs, projects, and activities; and DAF ensures to identify, disclose, and respond to potential adverse social and environmental effects on children in the area affected by a Proposed Action.

3.11.1 Existing Conditions

3.11.1.1 Environmental Justice

To identify potential minority, low-income, youth, and elderly populations, US Census minority and poverty data on census tracts within the ROI were analyzed. Census tracts are subdivisions of a county. The US Census Bureau defines census tracts as "small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial census. The primary purpose of census tracts is to provide a stable set of geographic units for the presentation." **Figure 3-8** shows the tracts that correspond with JBLE – Langley and the tracts that are contiguous with its boundaries. A large portion of JBLE – Langley, including the airfield, is within Census Tract 102.

CEQ guidance on environmental justice states that minority populations should be identified in areas in which either the minority population exceeds 50 percent or the minority population percentage is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997). For this EA, the latter was used as guidance to identify census tracts with minority population percentages exceeding those for Virginia, which has a lower threshold than the 50 percent threshold (i.e., 37 percent). Minority populations included in the census are identified as Black or African American, American Indian, Alaska Native, Asian, Native Hawaiian, Pacific Islander, Hispanic or Latino, or people of two or more races.

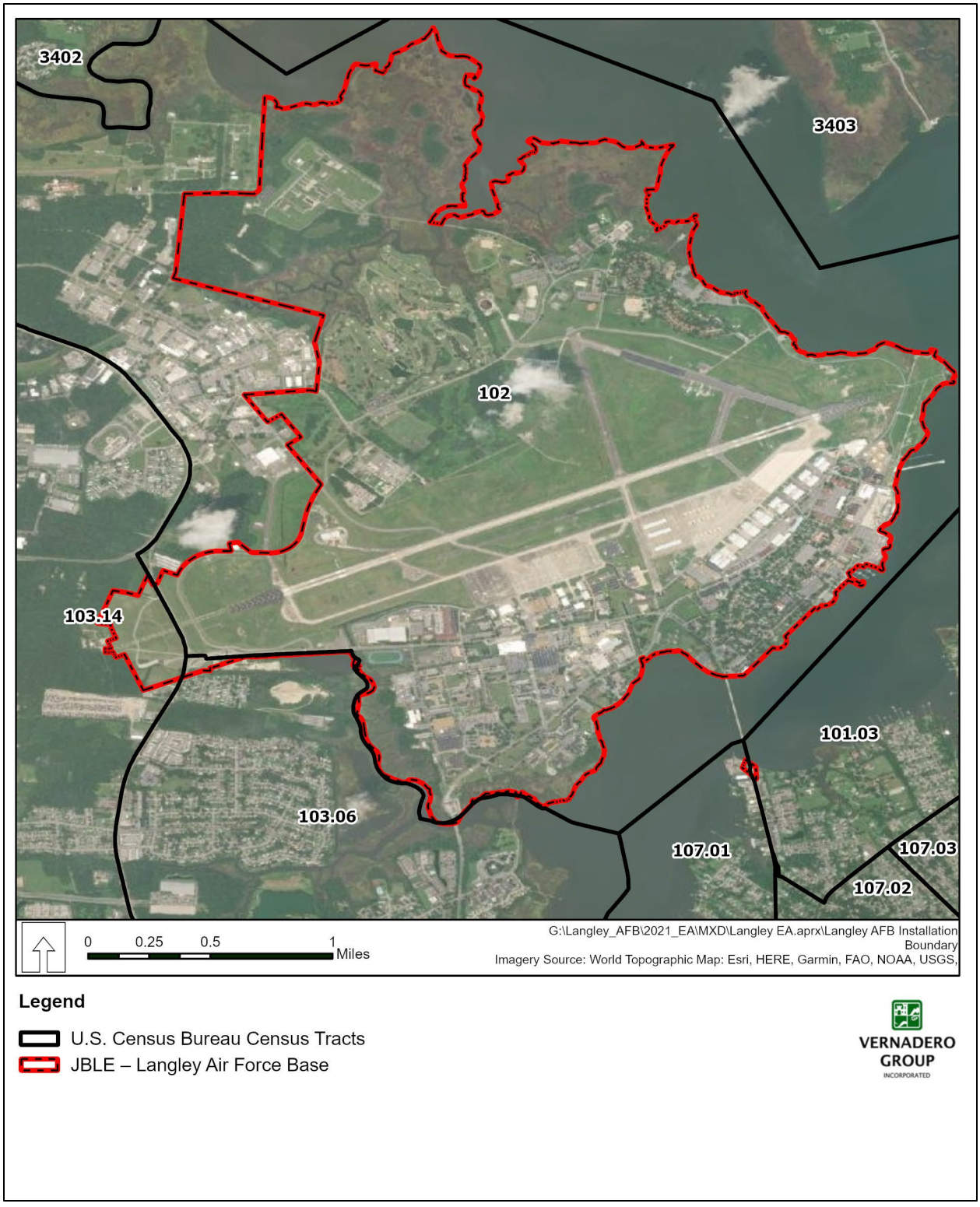

Figure 3-8. U.S. Census Bureau Tracts at and contiguous to Joint Base Langley-Eustis – Langley Air Force Base

Poverty thresholds established by the US Census Bureau are used to identify low-income populations (CEQ 1997). Per CEQ guidance, low-income populations in an affected area should be identified with the annual statistical poverty thresholds from US Census Bureau reports on income and poverty. The US Census Bureau reports poverty status as the number of people or families with income below a defined threshold level, defining the poverty threshold level as an annual income of $15,225 or less for an individual and $30,186 or less for a family of four (US Census Bureau 2022). The US Census Bureau defines a poverty area as a census tract where 20 percent or more of the residents have incomes below the poverty threshold, and an extreme poverty area as one with 40 percent or more of the population below the poverty threshold (US Census Bureau 1995).

Table 3-6 provides minority population and poverty statistics for the census tracts associated with JBLE – Langley and for Virginia and the United States. Of the seven census tracts that include or border JBLE – Langley, six have a higher percentage of minority residents than Virginia, and four of the tracts have more than 50 percent minority residents, including Census Tract 102 (**Table 3-6**). Of the seven census tracts that include or border JBLE – Langley, one of the tracts (Tract 107.01 located south of JBLE – Langley across the Southwest Branch of the Back River) had a percentage of the population in poverty higher than 20 percent (**Table 3-6**).

Table 3-6. Minority and Low-Income Populations

Jurisdiction	Minority Population (percent)	People below the Poverty Level (percent)
Region of Influence	45	12
Virginia	37	10
United States	39	13
Census Tracts		
101.03	66	5
102	65	6
103.06	40	11
103.14	37	11
107.01	42	33

Source: US Census Bureau 2019, 2021d

3.11.1.2 Protection of Children

Children are present at JBLE – Langley as residents and visitors. Children reside in on-base family housing or lodging and use recreational and childcare facilities. Precautions are taken to ensure child safety through many means, including using fencing, limiting access to certain areas, and requiring adult supervision. There are no residential areas or facilities where children typically are present (e.g., schools, daycares, or playgrounds) near the other proposed action sites at the airfield.

3.11.2 Environmental Consequences

Potential environmental justice impacts from a Proposed Action are considered significant if the action would have a disproportionate adverse effect on minority, low-income, or youth populations.

3.11.2.1 Alternative 1

Under Alternative 1, no significant environmental justice or protection of children effects would be expected. The proposed construction activities would not result in disproportionate adverse environmental or health effects on the low-income or minority populations in the ROI. There are no residential areas or

facilities where children typically are present (e.g., schools, daycares, or playgrounds) near the proposed construction areas at the airfield.

3.11.2.2 Alternative 2

No significant environmental justice or protection of children effects would be expected with implementation of Alternative 2. The proposed construction activities would not result in disproportionate adverse environmental or health effects on the low-income or minority populations in the ROI. There are no residential areas or facilities where children typically are present (e.g., schools, daycares, or playgrounds) near the other proposed construction areas at the airfield.

3.11.2.3 Cumulative Effects

Implementation of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, would not result in cumulative effects on minority, low-income, or youth populations. Impacts associated with proposed construction activities would not be disproportionate to the population as a whole. No significant, long-term, cumulative environmental justice impacts associated with the implementation of the Proposed Action in combination with reasonably foreseeable projects would occur at JBLE – Langley.

Adverse effects of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, could occur if children, supervised or unsupervised, accessed an active construction site. Construction sites are not monitored or patrolled around the clock, so the possibility of unauthorized access to a construction site by children exists. Construction site managers would secure equipment and sites when construction personnel are not present to minimize the potential for personal harm to unauthorized persons, whether children or adults. It would be incumbent upon each construction manager to ensure construction sites are secure and safe, to follow safety regulations and procedures, and to prevent unauthorized access to the construction site. Cumulative effects on the protection of children would be minimized by following these guidelines.

3.11.2.4 No Action Alternative

Under the No Action Alternative, there would be no disproportionate effects on minority, low-income, or youth populations. The No Action Alternative would not result in disproportionate adverse environmental or health effects on low-income or minority populations, and because no construction activities would take place, there would be no potential to substantially affect populations covered by EO 12898 or EO 13045 by excluding anyone, denying anyone benefits, or subjecting anyone to discrimination or disproportionate environmental or human health risks.

3.12 INFRASTRUCTURE AND UTILITIES

Infrastructure and utilities refer to the generation and transmission of potable water, sanitary wastewater and stormwater, and electricity generation as well as natural gas transmission and communications infrastructure, and the management of solid waste. Analyses of the utility conditions address the existing infrastructure (e.g., wells, water systems, wastewater treatment plants), current utility use, and any predefined capacity or limitations set forth in permits or regulations.

As defined by the Resource Conservation and Recovery Act (RCRA), "solid waste" means any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility or other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid waste management primarily relates to the availability of landfills to support a population’s residential, commercial, and industrial needs.

3.12.1 Existing Conditions

Multiple utilities are located along the runway and taxiways at JBLE – Langley, including runway lights with associated wiring vaults, jet fuel lines and associated monitoring sensors and shutoff controls, telecommunication cables and fiber-optic lines, stormwater drainage, power, and others (**Figure 3-9**).

3.12.1.1 Potable Water

Newport News Waterworks supplies potable water to JBLE – Langley with a direct connection near Lee Road and a second connection at the King Street Gate (JBLE 2017). There are also three supplemental water storage tanks to the direct and secondary connections on the installation (JBLE – Langley 2016).

According to the 2017 JBLE Installation Development Plan (IDP), JBLE – Langley can supply an average of 5.5 million gallons per day to the installation. The IDP assessed the condition of JBLE – Langley's potable water distribution system as degraded (JBLE 2017). In fiscal year 2018, JBLE – Langley used approximately 223 million gallons (0.61 million gallons per day) of potable water (JBLE – Langley 2019c).

3.12.1.2 Wastewater

JBLE – Langley has a discharge permit (permit # 0011) from the Hampton Roads Sanitation District (HRSD) that allows for a daily maximum discharge of 750,000 gallons per day and a monthly average maximum discharge of 497,000 gallons per day (HRSD 2018). According to the 2017 IDP, the average daily discharge from JBLE – Langley was 492,000 gallons per day (JBLE 2017). The 2017 JBLE IDP assessed JBLE – Langley's wastewater collection and discharge system as degraded (JBLE 2017). In fiscal year 2016 (through September 19), JBLE – Langley discharged 438,770 gallons per day (0.44 million gallons per day) of wastewater (JBLE – Langley 2016).

3.12.1.3 Stormwater

JBLE – Langley is serviced by a stormwater drainage system that discharges to the Back River and its tributaries: Brown Creek, Tides Mill Creek, Kiln Creek, and Tabbs Creek. Surface water also may drain directly to these water bodies. Stormwater drainage on JBLE – Langley is carried by a series of pipes, box culverts, and open ditches to 118 outfalls. Due to the flat relief of the area, standing water accumulates during heavy storm events. The USEPA has granted local NPDES permitting authority to the VDEQ under the VPDES. The installation is under VPDES Industrial Stormwater Permit # VAR052285 (DAF 2021a).

The VPDES permit identifies effluent limitations and requires semi-annual sampling and management of runoff and sediment and erosion control. The permit also requires analytical sampling of various stormwater outfalls, with results tracked and reported to the appropriate regulatory agencies (JBLE – Langley 2016). JBLE – Langley also operates under VDEQ MS4 permit # VAR040140, which expires on 30 June 2023. JBLE – Langley has prepared and implemented a SWPPP and an MS4 Program Plan to assist and document regulatory compliance. JBLE – Langley would coordinate with VDEQ if a permit modification is needed as a result of the Proposed Action.

3.12.1.4 Electrical System

Dominion Energy supplies power to JBLE – Langley from the Peninsula Substation. The capacity of the electrical system at JBLE – Langley is 80 megavolt-amperes (MVA) (or 80 megawatt hours [MWh]) without any auxiliary generators, while peak demand averages 33 MVA (or 33 MWh) (DAF 2021a). The 2017 IDP assessed the electrical system as degraded (JBLE 2017). In fiscal year 2018, the total electric consumption for JBLE – Langley was approximately 123,380 MWh (JBLE – Langley 2019d).

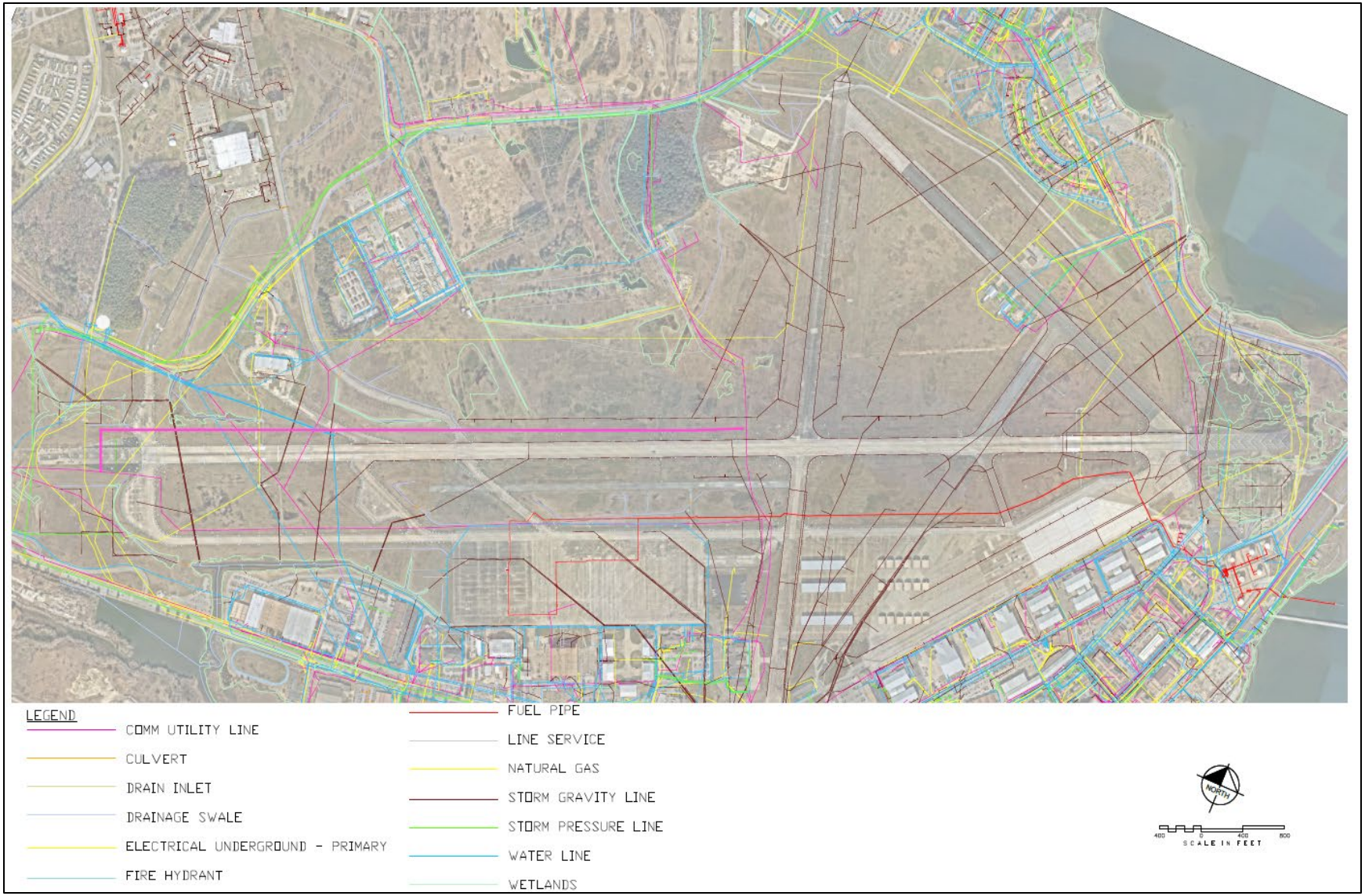

Figure 3-9. Existing Utilities Associated with the Airfield at Joint Base Langley-Eustis – Langley Air Force Base

3.12.1.5 Natural Gas

Virginia Natural Gas supplies JBLE – Langley from 87,000 feet of underground natural gas pipelines. The 2017 IDP assessed JBLE – Langley's natural gas infrastructure as adequate (JBLE 2017). In fiscal year 2019, the total natural gas consumption for JBLE – Langley was approximately 170 million cubic feet (JBLE – Langley 2019c), while capacity of the natural gas system is approximately 2,190 million cubic feet (DAF 2021a).

3.12.1.6 Communications

The communications network at JBLE – Langley comprises copper and Voice Over Internet Protocol systems. According to the 2017 IDP, the communication system at JBLE – Langley is sufficient to meet current mission needs (JBLE 2017).

3.12.1.7 Solid Waste

JBLE – Langley maintains an Integrated Solid Waste Management Plan that contains requirements and procedures for the management of solid waste. The plan covers management of solid waste through an integrated approach incorporating reduction, recycling, composting, energy recovery (incineration), and land filling. The plan details how JBLE – Langley manages solid waste collection and disposal and how it integrates recycling and composting programs into that process (JBLE – Langley 2018a).

Municipal solid waste at JBLE – Langley is collected at all commercial and industrial areas of the main installation. Construction and demolition debris is managed and removed by the base contractors who perform these activities. When practicable, construction and demolition debris is recycled by the demolition/construction contractors, and the remaining construction and demolition debris is disposed of at the Bethel Sanitary Landfill in Hampton, Virginia (JBLE – Langley 2018b).

3.12.2 Environmental Consequences

3.12.2.1 Alternative 1

Short-term, minor, adverse effects on utilities would be expected. All existing primary electrical, communication, gas, fuel, water, and sanitary lines (see **Figure 3-9**) would be protected in place to the maximum extent possible under Alternative 1. Any adjustments to these lines would be evaluated during the future design efforts and based on required grading and improvements. Current geographic information system (GIS) information exists for general location of underground utilities across the airfield (see **Figure 3-9)**, excluding depth, and detailed subsurface utility engineering would be required prior to execution of the full design effort. For any proposed construction close to known utility lines, hand digging would be required.

During construction, all existing underground utilities and their associated appurtenances within the shoulder footprint would be protected, removed, or relocated as necessary, and any resulting excavations would be properly backfilled and compacted. Underground utilities impacted could include, but are not limited to, existing drainpipes, fuel lines, power junctions and conduit, telecommunication cables, and runway light bases. In particular, the runway edge light system would be impacted. Confirmation of utilities locations would be the responsibility of project contractors who would closely coordinate with JBLE – Langley's utility representatives in order to determine the presence and location of impacted utilities. Upon completion of the proposed construction activities, impacts on utilities would cease.

3.12.2.2 Alternative 2

Implementation of Alternative 2 would result in the same short-term, minor, impacts on utilities as Alternative 1. All existing primary electrical, communication, gas, fuel, water, and sanitary lines (see **Figure 3-9**) would be protected in place to the maximum extent possible under Alternative 1. Any adjustments to these lines would be evaluated during future design efforts and would be based on required grading and improvements. Current GIS information exists for the general location of underground utilities across the airfield (see **Figure 3-9**), excluding depth. Detailed subsurface utility engineering would be required prior to execution of the full design effort. For any proposed construction close to known utility lines, hand digging would be required.

During construction, all existing underground utilities and their associated appurtenances within the shoulder footprint would be protected, removed, or relocated as necessary, and any resulting excavations would be properly backfilled and compacted. Underground utilities impacted could include, but are not limited to, existing drainpipes, fuel lines, power junctions and conduit, telecommunication cables, and runway light bases. In particular, the runway edge light system would be impacted. Confirmation of utilities locations would be the responsibility of project contractors who would closely coordinate with JBLE – Langley's utility representatives in order to determine the presence and location of impacted utilities. Upon completion of the proposed construction activities, impacts on utilities would cease.

3.12.2.3 Cumulative Effects

Implementation of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, would not significantly alter or exceed the existing utilities at JBLE – Langley. No significant long-term, cumulative, utilities impacts associated with the implementation of the Proposed Action in combination with reasonably foreseeable projects would occur at JBLE – Langley.

3.12.2.4 No Action Alternative

No adverse effects on utilities would be expected under the No Action Alternative. Existing utilities located along the runway and taxiways at JBLE – Langley would remain unchanged when compared to existing conditions.

3.13 TRANSPORTATION

The transportation system discussed in this EA includes roadways, vehicles, and trails. The regional transportation system discussed includes various transportation routes. Gate access is also summarized for the major entry control points (i.e., gates), including existing traffic conditions at gates.

3.13.1 Existing Conditions

JBLE – Langley is located approximately 3 miles northeast of Interstate 64, which provides regional access to the installation (**Figure 3-10**). Roads that serve as access points include LaSalle Avenue (State Route 167), Armistead Avenue (State Route 134), and King Street (State Route 278). LaSalle Avenue is a four-lane road that provides access to the Main Gate (**Figure 3-10**) and Visitor Center. Armistead Avenue is a four-lane road that provides access to the West Gate (**Figure 3-10**). Armistead Avenue becomes Sweeney Boulevard at the West Gate. King Street is a two-lane road that provides access to the King Street Gate (**Figure 3-10**).

Traffic congestion primarily occurs at the Main and West gates and on Sweeney Boulevard during peak hours (JBLE – Langley 2016). The West Gate, LaSalle Gate, and King Street Gate handle 50, 27, and 15 percent, respectively, of the morning peak hour traffic. The West Gate also includes a commercial inspection area (JBLE 2017).

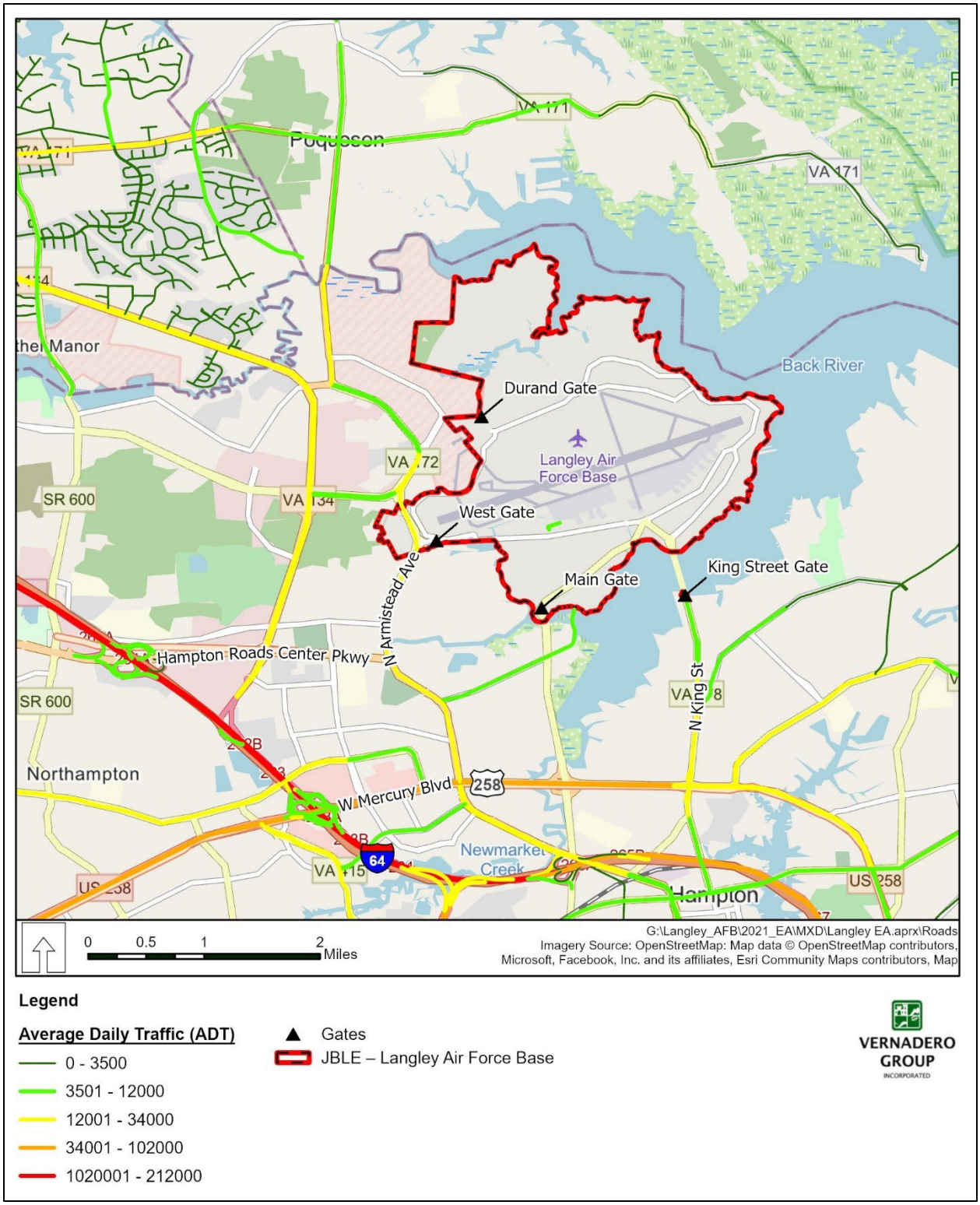

Figure 3-10. Roadways and Access Points at Joint Base Langley-Eustis – Langley Air Force Base

3.13.2 Environmental Consequences

3.13.2.1 Alternative 1

Short-term, minor, adverse effects on the transportation system would be expected. All construction vehicles would access the installation via Armistead Avenue and the West Gate. Local roads generally have low traffic volume and incidents of congestion; however, heavy volume and traffic congestion occurs during the morning and evening rush hours on weekdays, particularly at the West Gate and along Sweeney Boulevard. Minor impacts on the transportation system near the base would be expected from the temporary increase in the number of vehicles during construction. Appropriate routes for construction vehicles would be communicated prior to project implementation, and construction traffic during rush hours would be avoided to the extent practicable. Upon completion of the Proposed Action, impacts on the transportation system would cease. Construction vehicles would use roads suitable for their size and weight to minimize impacts on road surfaces. Overall, there would be no significant impacts on transportation.

3.13.2.2 Alternative 2

Implementation of Alternative 2 would result in the same short-term, minor, impacts on transportation as Alternative 1. All construction vehicles would access the installation via Armistead Avenue and the West Gate. Local roads generally have low traffic volume and incidents of congestion; however, heavy volume and traffic congestion occur during the morning and evening rush hours on weekdays, particularly at the West Gate and along Sweeney Boulevard. Minor impacts on the transportation system near the base would be expected from the temporary increase in the number of vehicles during construction. Appropriate routes for construction vehicles would be communicated prior to project implementation, and construction traffic during rush hours would be avoided to the extent practicable. Construction vehicles would use roads suitable for their size and weight to minimize impacts on road surfaces. Upon completion of the Proposed Action, impacts on the transportation system would cease.

3.13.2.3 Cumulative Effects

Implementation of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, would not change the regional or local transportation system or routes. Congestion at access gates on JBLE – Langley during peak hours would continue, but cumulative impacts on transportation would not be expected to be significant. No significant, long-term, cumulative transportation impacts associated with the implementation of the Proposed Action in combination with reasonably foreseeable projects would occur at JBLE – Langley.

3.13.2.4 No Action Alternative

No adverse effects on the regional or local transportation system or routes would be expected under the No Action Alternative. Traffic and roadways would remain unchanged when compared to existing conditions.

3.14 HAZARDOUS MATERIALS AND WASTES

The Comprehensive Environmental Response Compensation Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and the Toxic Substances Control Act, defines hazardous materials as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, or incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. OSHA is responsible for enforcement and implementation of Federal laws and regulations pertaining to worker health and safety under 29 CFR Part 1910. OSHA also is responsible for regulating

hazardous materials in the workplace and ensuring appropriate training in their handling (JBLE – Langley 2019d).

The Solid Waste Disposal Act as amended by RCRA, which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. A hazardous waste is any solid, liquid, contained gaseous, or semisolid waste or any combination of wastes that pose a substantial present or potential hazard to human health or the environment. In general, both hazardous materials and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health and welfare or the environment when released or otherwise improperly managed (JBLE – Langley 2019d).

AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, sets forth procedures for managing hazardous waste and is the driver for the development of the JBLE – Langley Hazardous Waste Management Plan (JBLE – Langley 2019d).

The Environmental Restoration Program (ERP), which was initiated in 1980 became law under SARA, and requires DoD installations to identify, investigate, and clean up hazardous waste disposal or release sites. Remedial activities for ERP sites follow the Hazardous and Solid Waste Amendments of 1984 under the RCRA Corrective Action Program and CERCLA. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control the migration of contaminants, minimize potential hazards to human health and the environment, and clean up contamination through a series of stages until it is decided that no further remedial action is warranted.

For this EA, discussion of hazardous materials and wastes include managing hazardous materials and hazardous wastes and ERP sites within or abutting the airfield.

3.14.1 Existing Conditions

3.14.1.1 Hazardous Materials and Wastes

The 633 CES Installation Management Flight has the overall responsibility for implementing the hazardous waste program at JBLE – Langley and serves as the lead for monitoring compliance with applicable Federal, state, and local regulations. Operations at JBLE – Langley, including aircraft operations, require the use and storage of hazardous materials. Hazardous materials used at JBLE – Langley are primarily used in aircraft maintenance and training operations and include oil, Jet A fuel, diesel, gasoline, hydraulic fluid, paints, solvents, detergents, adhesives/sealants, lube oil, batteries, antifreeze, and deicing chemicals. Procurement of hazardous and toxic materials is controlled and tracked through the Enterprise Environmental, Safety and Occupational Health Management Information System (EESOH-MIS) by the Hazardous Materials Pharmacy (HAZMART). HAZMART provides centralized management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials. It also ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used (JBLE – Langley 2019d).

The 633 CES Environmental Element maintains the JBLE – Langley Hazardous Waste Management Plan in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention* and AFI 23-201, *Fuels Management*. The plan provides base personnel with an organized program that allows for proper waste management and generated hazardous wastes to be managed in compliance with all applicable Federal, state, and local laws and regulations. The plan sets base policy and assigns responsibilities to base personnel in order to protect public health and the environment from activities managing and generating hazardous wastes (JBLE – Langley 2019d).

JBLE – Langley is a large-quantity hazardous waste generator. In accordance with the requirements outlined in the JBLE – Langley Hazardous Waste Management Plan (JBLE – Langley 2019d), hazardous wastes are properly segregated, stored, characterized, labeled, and packaged for collection at designated initial satellite accumulation points. Accumulated wastes gathered at a single designated 90-day Hazardous Waste Storage Area; analyzed, characterized, and prepared for shipment; and managed by the DLA Disposition Services in Norfolk, Virginia, which arranges for disposal through its contractors (JBLE – Langley 2019d). A trained contractor transports the waste from the accumulation points to the 90-day Hazardous Waste Storage Area on JBLE – Langley, where it is processed for disposal before 90 days have elapsed. A licensed disposal contractor picks up the waste and transports it off the base for disposal in a licensed disposal facility.

3.14.1.2 Environmental Restoration Program Sites

The environmental cleanup program at JBLE – Langley is managed under the DoD ERP. There are two cleanup subprograms under the ERP: the Installation Restoration Program and the Military Munitions Response Program (MMRP). There are a total of 66 ERP sites at JBLE – Langley. Of those 66 sites, 54 have been closed or require no further action, and 12 are in long-term management. These sites have undergone various remedial activities, including remedial investigations, feasibility studies, remedial design, remedial action, and/or long-term management. Specific details on the ERP can be found in the JBLE – Langley ERP site summaries that can be accessed online at: https://ar.afcec-cloud.af.mil.

Only those ERP or MMRP sites within or within immediate proximity to the proposed actions with potential to be affected are analyzed in this EA. These include ERP sites LF-01, ST-26, and MMRP Munitions Response Site (MRS) MU157 (**Figure 3-11**).

Site LF-01 Abandoned Landfill, End of 26 Runway

Site LF-01 is a 4.4-acre abandoned landfill located in the Runway 26 Clear Zone (**Figure 3-11**). Site LF-01 is in long-term management and was active between 1940 and 1950 and might have received small quantities of wood, concrete, ash, glass, and metal. The landfill was covered with a minimum of 2 feet of soil and surrounded by signs. Land use control (LUC) objectives are in place and include preventing contact with waste material and groundwater by prohibiting unauthorized ground disturbance activities and residential use. Monitoring includes inspection of the vegetated soil cover to ensure integrity, verifying that the landfill signs are in place, and verifying that no unauthorized digging has occurred (JBLE – Langley 2016). Site LF-01 was included in a clear zone drainage system replacement project that was recently completed (DAF 2021b). The project eliminated ponding by adding additional soil cover, which directed water to the stormwater system. If not corrected, the ponding water would have been detrimental to the landfill cap.

Site ST-26, West Apron/Control Tower, Fuel Saturated Area

Site ST-26 is located in between Taxiways C and M (**Figure 3-11**) and includes several fuel-saturated areas in the south-central portion of the base that include the Control Tower Area, the Hot Pits Area, and Brown's Creek. The Control Tower Area was originally identified as Site SS- 21 in 1981. After soil sampling and analysis were conducted, the site was recommended for no further action. The Control Tower Area includes the pumping station and the fire station. The Hot Pits Area is at the northern edge of the jet parking area, where jet aircraft are fueled and defueled. Brown's Creek is a tidal creek that originates near the Control Tower and flows directly into the Back River. Site ST-21 was closed in 1992,

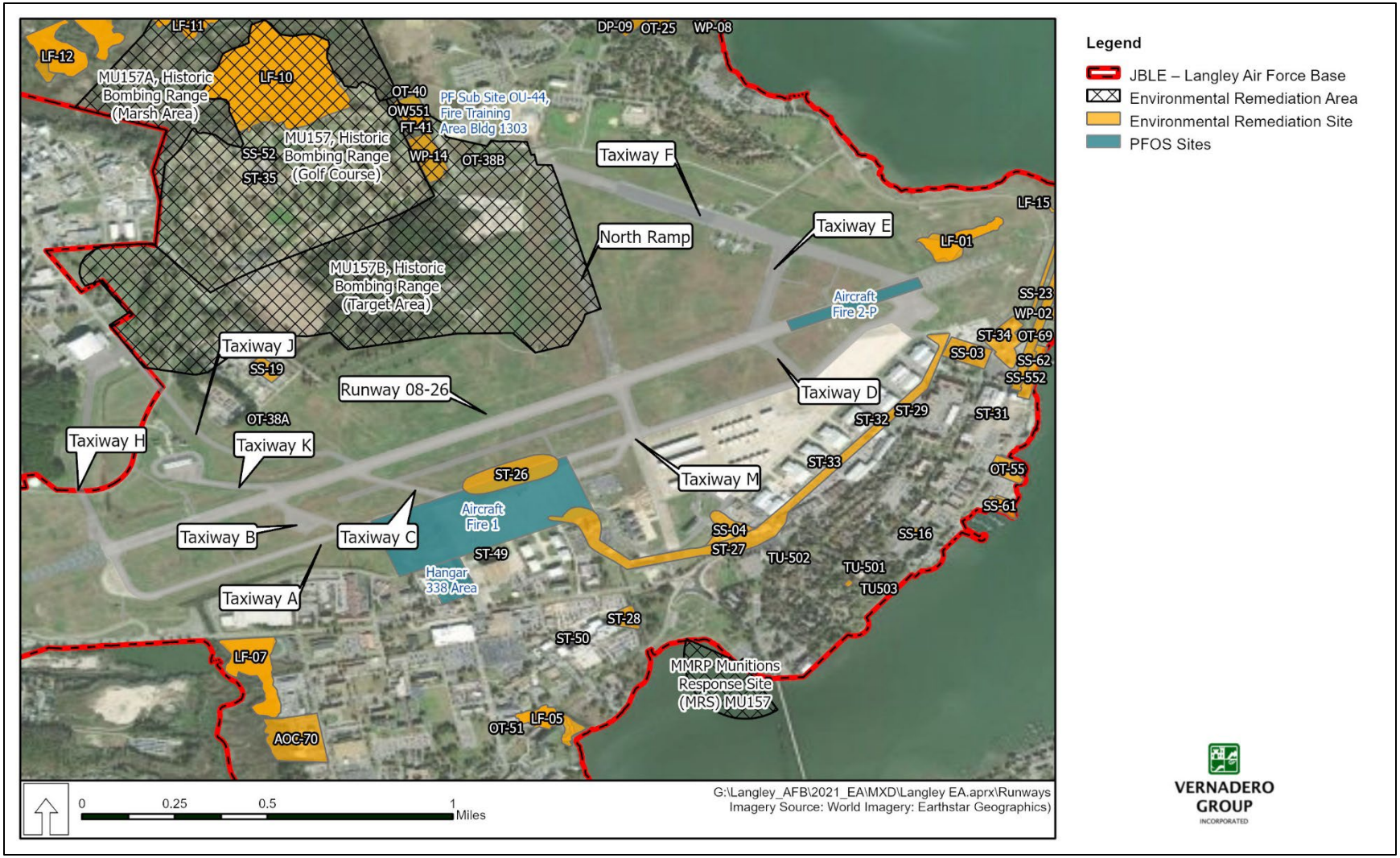

Figure 3-11. Environmental Remediation Program Sites and PFOS Sites near the Proposed Action at Joint Base Langley-Eustis – Langley Air Force Base

and contamination was addressed by remediation of Site ST-26 (JBLE – Langley 2007). Site ST-26 was subsequently closed in 2001.

Site MU 157, Historic Bombing Range

The Historic Bombing Range consists of three MRSs. These include the Golf Course (MU157), Historic Bombing Range – Marsh Area (MU157a), and Historic Bombing Range – Target Area (MU157b). Of the three sites, only MU157b is within the Proposed Action area. The remaining sites are north of the project area. MU157b occupies approximately 254 acres and includes a combination of airfield, open space, service areas, an abandoned nine-hole golf course, and an active driving range (see **Figure 3-8**). The former bombing range was used from 1917 to 1945 as a World War I- and World War II-era range to train bombardiers, fighter pilots, and crews. Previous investigation of approximately 124 acres of the MU157b site identified subsurface targets, of which 2,290 were intrusively investigated and resulted in 12 targets identified as munitions and explosives of concern (MEC) and 257 others identified as munitions debris (USACE 2016). MEC designation distinguishes specific categories of military munitions that could pose unique explosives safety risks: (A) unexploded ordnance (UXO), (B) discarded military munitions, or (C) munitions constituents present in high enough concentrations to pose an explosive hazard. The highest densities of MEC and munitions debris were found throughout the northern part of the former target area, primarily in the northwest, in the active driving range portion of the MRS.

Previous investigations have also determined that munitions constituents (MC), which are materials originating from UXO, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions, did not pose an unacceptable risk to human health or the environment (USACE 2016). However, if additional MEC are identified, additional sampling for MC might be required.

In 2016, based on previous findings, completion of a feasibility study was recommended to evaluate potential remedial actions at MRS MU157b to reduce risk of human exposure to MEC (USACE 2016). In 2019, subsequent surveys were finalized and show that this area is clear of MEC. However, if intrusive activities such as excavation in the area are planned, on-site UXO support would be required when those activities are being conducted (David Jennings, JBLE – Langley, email, 10 December 2019). Runway and taxiway construction, along with stormwater components of the Proposed Action, are proposed within MRS MU157b.

3.14.1.3 Perfluorooctane Sulfonate and Perfluorooctanoic Acid Sites

DoD has identified certain per- and polyfluoroalkyl substances (PFAS) as emerging contaminants of concern that affect DAF installations. Specifically, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS) are components of Aqueous Film Forming Foam (AFFF) that DAF began using in the 1970s as a firefighting agent to extinguish petroleum fires. The USEPA issued drinking water lifetime Health Advisories (HAs) for PFOS and PFOA, and health-based soil-based surface soil regional screening levels (RSLs) for PFOS, PFOA, and two RSLs, surface soil and drinking water for PFBS.

DAF is systematically evaluating potential AFFF releases on all installations and former installations. It began with the preliminary assessments that identified potential release areas. Historical records were reviewed, and first responders, fire chiefs, and hangar staff were interviewed to determine where a release or a spill may have occurred on an installation. Following preliminary assessments, site inspections were

initiated to collect soil and groundwater samples and analyze those media for 16 different PFAS at the potential release areas.

Fire Training Area Building 1303 PFOS Site

At JBLE – Langley, the current fire training areas (FTAs) were identified as potential release areas (see **Figure 3-11**). The current FTA is located at the north end of the installation. The current FTA consists of a 200-foot-diameter gravel area bordered on the north by wetlands and Tabbs Creek, on the west by a 20- to 30-foot-high earthen berm separating the FTA from the golf course, and on the southeast by Buildings 1308 and 1302. Fire training operations started in the area in the 1960s. The current FTA was constructed in 1985 over the location of the old FTA. If AFFF is used in an exercise, the pit area is not drained, but the AFFF foam is contained and allowed to dissipate. When water is drained through the pump system, it flows through an underground piping structure and is discharged at the edge of the berm on the western side of the FTA. The discharged fluid flows with the normal surface water drainage to the northern wetlands.

AFFF is not used for quarterly training at the FTA, but it is used for time and distance testing on pump trucks. Two to 10 gallons of AFFF are sprayed into the center of the FTA from each crash truck, and the amount of AFFF released depends on the individual capacities of each truck. An accidental release of AFFF occurred in October 2014, when a valve leaked on a truck and approximately 50 gallons of AFFF fluid were sprayed into the center of the FTA. Four subsurface soil samples from depths of approximately 6 to 8 feet below ground surface, five groundwater samples, one surface water sample, and one sediment sample were collected from AFFF Area 1. No surface soil samples were collected because the ground surface was regraded when the current FTA was constructed over the former FTA.

PFBS, PFOA, and PFAS were detected in the subsurface soil samples (JBLE – Langley 2022**)**. Surface water and sediment in the receiving wetlands were sampled, with detectable but generally low concentrations of PFAS. Surface soils are not exposed since the new training pit overlays the historic pit. DAF has identified a high possibility of groundwater contamination; however, no existing downgradient drinking water wells beyond 4 miles have contaminant detection(s), and no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water or other beneficial use (JBLE – Langley 2022). DAF has identified no potential for receptors to have access to contaminated soils, and low potential for receptors to have access to surface water or sediment to which contamination has moved or can move (JBLE – Langley 2022).

Aircraft Fire 1 PFOS Site

The Aircraft Fire 1 site (see **Figure 3-11**) is along the large concrete tarmac on the east side of the flightline. JBLE-Langley personnel reported two fires occurred in approximately the same location on the flightline between January and March 1981. The area includes Taxiway A and is bounded on the north by an expanse of grassy area and runways, to the west by a grassy area, to the south by numerous hangars, and to the east by a large concrete pad. The first fire was in a mobile command center, KC-135 aircraft, and was from an electrical short between the inner and outer hull of the aircraft. The fire department extinguished the fire by drilling holes into the exterior of the aircraft and filling the gap with AFFF.

According to multiple JBLE – Langley personnel, the fire was large, and the installation had to be evacuated because of the possibility of explosion. Photographic evidence indicated that more than 500 gallons of AFFF fluid were released during this emergency response. A second incident occurred in the same area and during the same timeframe when an electrical short occurred on the wing light of an F-15 aircraft and ignited the fuel source. The fire department extinguished the fire. Groundwater, subsurface

soil, surface water and sediment were collected from AFFF Area 4. No surface soil samples were collected because surface soils were removed during the response.

DAF has identified a medium possibility of groundwater contamination; however, no existing downgradient drinking water wells beyond 4 miles have contaminant detection(s) and no known drinking water wells downgradient or groundwater is currently or potentially usable for drinking water or other beneficial use (JBLE – Langley 2022). DAF has identified low potential for receptors to have access to surface water or sediment to which contamination has moved or can move (JBLE – Langley 2022).

Aircraft Fire 2-P PFOS Site

The Aircraft Fire 2-P site (see **Figure 3-11**) is at Taxiway M on the northeast end of the main runway. An emergency response was required in 1982 when a plane landed with a fire onboard caused by lightning igniting the wing fuel tank during flight. The pilot grounded the aircraft on the runway and ejected from the still-moving plane. Firefighting trucks followed the moving aircraft down the runway spraying the burning plane with approximately 300 gallons of AFFF fluid. The AFFF was allowed to directly infiltrate the ground on the grassy areas bordering the runway, and no cleanup activities were conducted. The area is bordered to the east by wetlands and the Back River, to the south by Taxiway A, and to the north by a grassy field. PFBS, PFOA, and PFOS were detected in the surface soil samples.

DAF has identified a low possibility of groundwater contamination; however, no known water supply wells are downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (JBLE – Langley 2022). DAF has identified limited potential for receptors to have access to contaminated soil and overall low potential for soil contamination (JBLE – Langley 2022).

3.14.2 Environmental Consequences

Impacts on hazardous materials management would be considered adverse if the Proposed Action resulted in noncompliance with applicable Federal and state regulations, or increased the amounts generated or procured beyond current JBLE – Langley waste management procedures and capacities. Impacts on the ERP would be considered adverse if the Federal action disturbed (or created) contaminated sites resulting in negative effects on human health or the environment.

3.14.2.1 Alternative 1

Negligible adverse effects on hazardous materials and hazardous wastes are expected from implementing the Proposed Action associated with Alternative 1. Hazardous materials and hazardous wastes associated with the proposed construction activities would be minimal and handled and disposed of in accordance with applicable Federal, state, and local regulations and in accordance with established base procedures. The use of such materials and generated waste would be expected from the use of heavy equipment during construction activities. Construction contractors would be responsible for preventing spills by implementing proper storage and handling procedures and by following base requirements. Contractors would perform daily inspections of equipment, maintain appropriate spill containment materials on the site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the site. All hazardous materials used during the performance of work would be reported to the base for tracking and accountability purposes. In addition, the construction contractor would provide copies of safety data sheets to the base and maintain copies at the proposed project location.

Alternative 1 would include taxiway construction and installation of wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course

pond within MRS MU157b (**Figure 3-12**). As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project.

Under Alternative 1, no adverse effects on Site LF-01 would be expected, as there are no proposed actions within these sites (**Figure 3-12**). However, Alternative 1 would include installation of wet well storage and a pump station on the airfield infield to direct stormwater from the western side of the runway to the existing golf course pond within MRS MU157b. In addition, under Alternative 1 shoulder construction would occur within portions of Site ST-26 and immediately adjacent to the Aircraft Fire 1 and Aircraft First 2-P PFOS sites (**Figure 3-12**). As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project within MRS MU157b. All activities occurring within the MRS site, Site ST-26, and close to any ERP or PFOS site, or within LUC areas, such as LF-01, would require coordination with the JBLE Environmental Restoration Office prior to ground-disturbing activities.

Through coordination, the location of monitoring wells and the need for dig permits or LUC waivers would be determined. For work within MRS MU157b, additional project planning would determine appropriate health and safety requirements and proper handling and disposal of any MEC or contaminated soils or groundwater that might be encountered during construction. Should MEC or contaminated soils or groundwater be encountered, they would be managed in accordance with base requirements and applicable Federal, state, and local laws and regulations.

3.14.2.2 Alternative 2

Negligible adverse effects on hazardous materials and hazardous wastes would be expected from implementing the Proposed Action associated with Alternative 2. Hazardous materials and hazardous wastes associated with the proposed construction activities would be minimal and handled and disposed of in accordance with applicable Federal, state, and local regulations and in accordance with established base procedures. The use of such materials and generated wastes would be expected from the use of heavy equipment used during construction activities. Construction contractors would be responsible for preventing spills by implementing proper storage and handling procedures and by following base requirements. Contractors would perform daily inspections of equipment, maintain appropriate spill containment materials on the site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the site. All hazardous materials used during the performance of work would be reported to the base for tracking and accountability purposes. In addition, the contractor would provide copies of safety data sheets to the base and maintain copies at the proposed project location.

Alternative 2 includes taxiway construction within MRS MU157b (**Figure 3-13**). As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project. Under Alternative 2, no adverse effects on Site LF-01 would be expected, as there are no proposed construction activities within these sites (**Figure 3-13)**. In addition, Alternative 2 would include shoulder construction within portions of Site ST-26 and immediately adjacent to the Aircraft Fire 1 and Aircraft First 2-P PFOS sites (**Figure 3-13)**. As a precaution, safety monitoring for UXO would be conducted during the earthwork portion of the project within MRS MU157b. All activities that would occur within the MRS site, Site ST-26, and close to any ERP or PFOS site, or within LUC areas, such as LF-01, would require coordination with the JBLE Environmental Restoration Office prior to ground-disturbing activities.

Through coordination the location of monitoring wells, the need for dig permits or LUC waivers would be determined. For work within MRS MU157b, additional project planning would determine appropriate health and safety requirements and proper handling and disposal of any MEC or contaminated soils or groundwater that might be encountered during construction. Should MEC or contaminated soils or

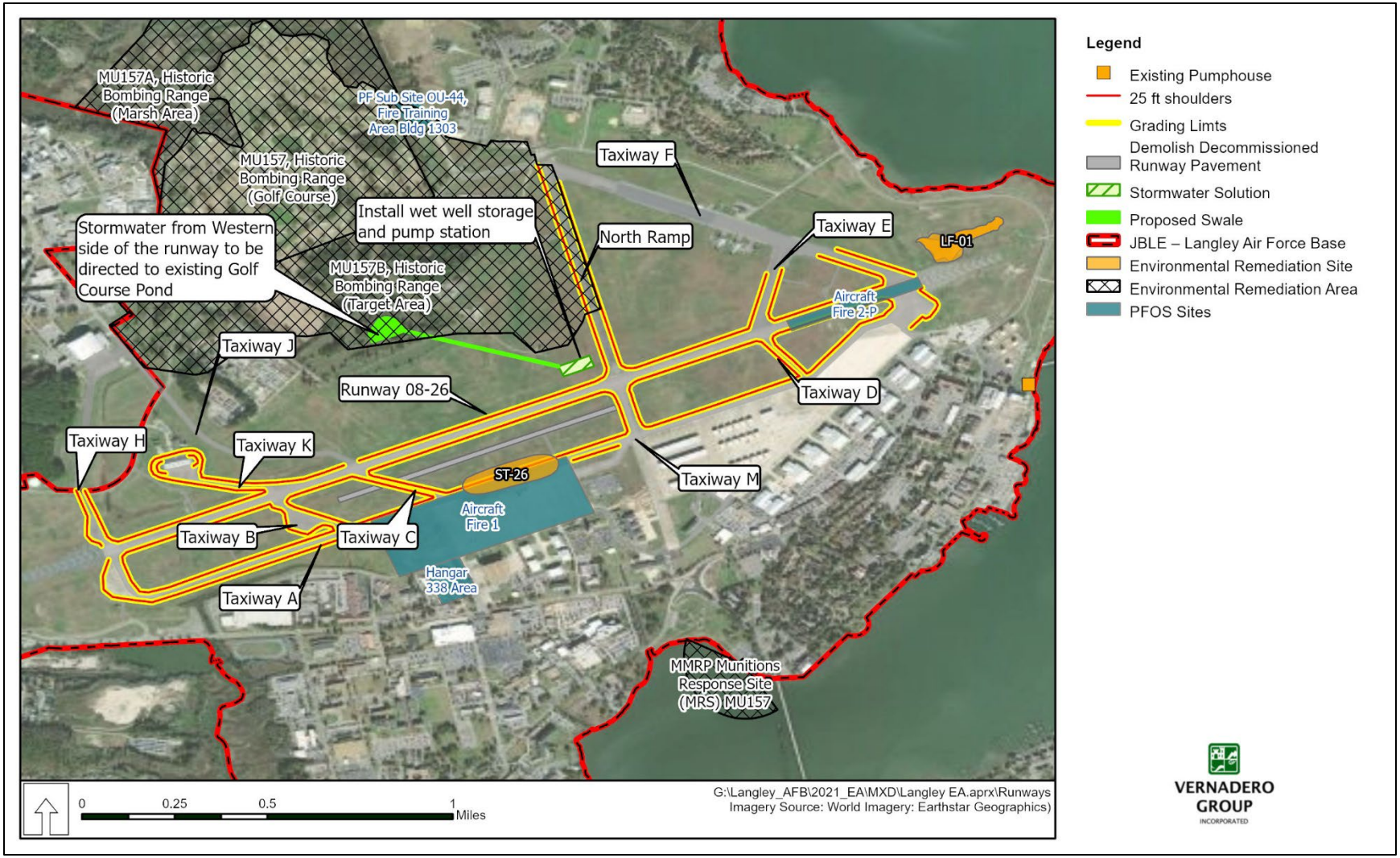

Figure 3-12. Alternative 1 and Environmental Remediation Program Sites at Joint Base Langley-Eustis – Langley Air Force Base

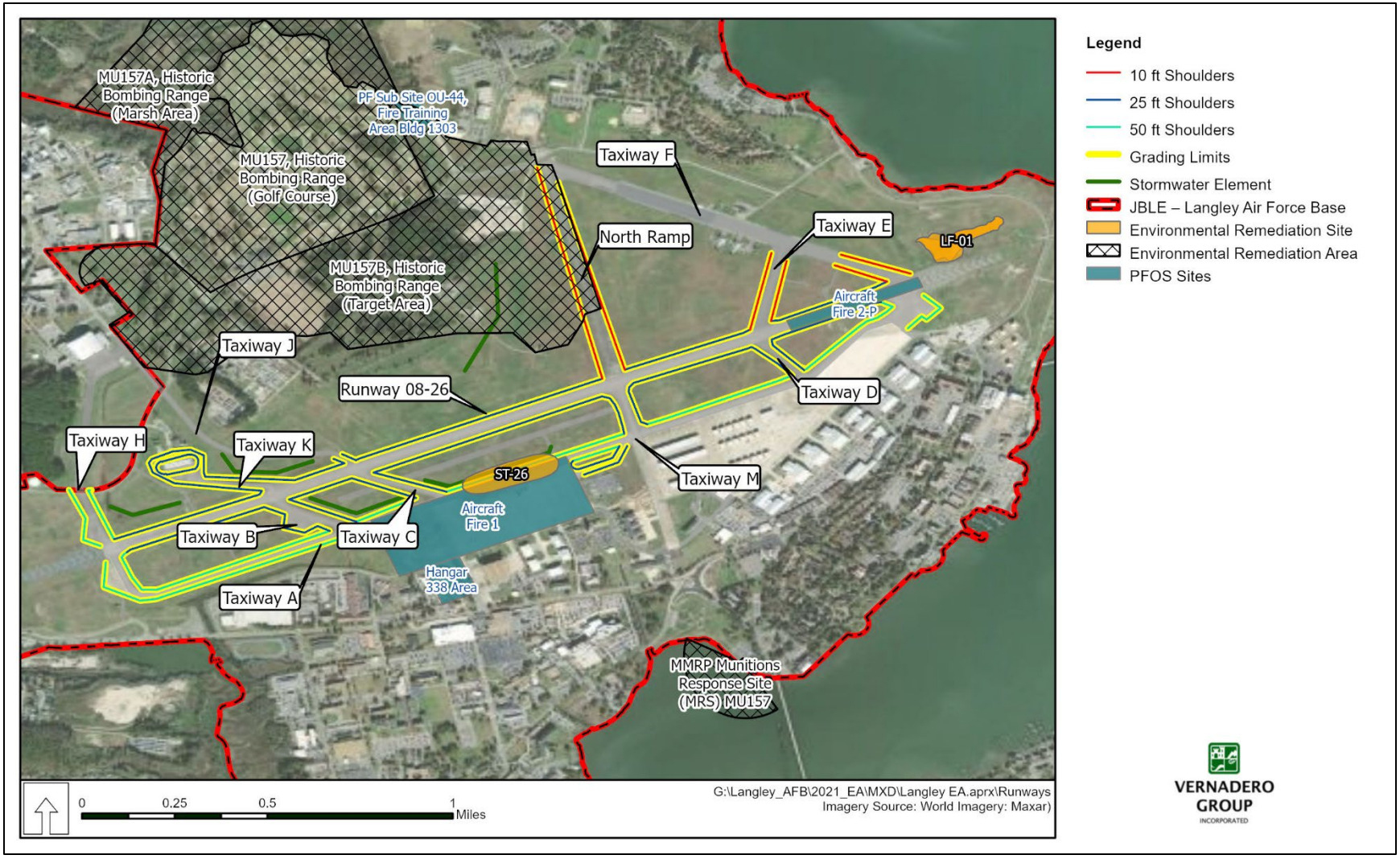

Figure 3-13. Alternative 2 and Environmental Remediation Program Sites at Joint Base Langley-Eustis – Langley Air Force Base

groundwater be encountered, they would be managed in accordance with base requirements and applicable Federal, state, and local laws and regulations.

3.14.2.3 Cumulative Effects

Implementation of the Proposed Action, in conjunction with other reasonably foreseeable projects that may be planned in the near future, could result in cumulative effects on hazardous materials and hazardous wastes from such materials and wastes used and generated from individual projects not being managed in accordance with regulations and plans. However, adherence to project and base management plans would limit potential impacts of individual projects and their cumulative effects.

3.14.2.4 No Action Alternative

No effects on hazardous materials and wastes would occur. No changes to hazardous material and waste use, handling, storage, transport, or disposal would result under the No Action Alternative.

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4.0 LIST OF PREPARERS

This EA has been prepared under the direction of the DAF Civil Engineer Center, DAF, and JBLE – Langley. The individuals who contributed to the preparation of this EA are listed in **Table 4-1**.

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Appendix A

Early Public Notice and Agency and Tribal Correspondence

Appendix A

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List of Agencies and Tribes Consulted/Coordinated

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List of Agencies and Tribes Consulted/Coordinated

Federal Agencies	
National Oceanic and Atmospheric Administration Fisheries Service	US Army Corps of Engineers, Norfolk District
US Department of Agriculture, Natural Resources Conservation Service	US Environmental Protection Agency, Region 3
US Fish and Wildlife Service, Virginia Field Office	US Geological Survey, Environmental Affairs Program
State Agencies	
Virginia Department of Conservation and Recreation, Virginia Natural Heritage Program	Virginia Department of Environmental Quality, Virginia Coastal Zone Management Program
Virginia Department of Environmental Quality, Office of Environmental Impact Review	Virginia Department of Wildlife Resources
Virginia Department of Historic Resources, Review and Compliance	Virginia Marine Resources Commission
Local Agencies	
City of Hampton, Virginia	Hampton Wetland Board
City of Poquoson, Virginia	York County Administrator
Tribes	
Catawba Indian Nation	Chickahominy Indian Tribe
Delaware Nation	Nansemond Indian Nation
Pamunkey Indian Tribe	Rappahannock Tribe Cultural Center
Upper Mattaponi Indian Tribe	

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Early Public Notice

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VIRGINIA MEDIA

Affidavit of Publication

State of Illinois
County of Cook

Order Number: 7193172
Purchase Order:

This day, Jeremy Gates appeared before me and, after being duly sworn, made oath that:

1) He/she is affidavit clerk of Daily Press, a newspaper published by Daily Press, LLC in the city of Newport News and the state of Virginia
2) That the advertisement hereto annexed has been published in said newspaper on the dates stated below
3) The advertisement has been produced on the websites classifieds.pilotonline.com and https://www.publicnoticevirginia.com

Published on: **Apr 22, 2022; Apr 23, 2022.**

Jeremy Gates

Subscribed and sworn to before me in my city and state on the day and year aforesaid this 22 day of June, 2022

My commission expires November 23, 2024

Notary Signature

Notary Stamp

VIRGINIA MEDIA

EARLY NOTICE OF A PROPOSED ACTIVITY WITH POTENTIAL TO IMPACT FLOODPLAINS AND WETLANDS JOINT BASE LANGLEY-EUSTIS LANGLEY AIR FORCE BASE, VIRGINIA

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia. The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The proposed project is subject to Executive Order (EO) 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*, requirements and objectives because the proposed shoulder construction would take place within portions of the 100-year and 500-year floodplains on JBLE – Langley and proposed work would also occur within wetlands adjacent to the airfield as part of the Proposed Action.

The DAF requests advance public comment to determine if there are public concerns regarding the project's potential impacts on floodplains or wetlands. The DAF would also like to solicit public input or comments on potential project alternatives. The proposed project will be analyzed in the forthcoming EA, and the public will have the opportunity to comment on the Draft EA when it is released.

The public comment period is 22 April 2022 to 22 May 2022. Please submit comments or requests for more information to the 633 Civil Engineer Squadron (CES) Environmental Element organization email at 633CES.CEIE.NEPAPublicComment@us.af.mil.

Agency and Tribal Correspondence

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Stepan Nevshehirlian
Environmental Assessment Branch
US EPA Mid-Atlantic Region
1650 Arch Street (3RA12)
Philadelphia, Pennsylvania 19103-2029
Submitted via email to Nevshehirlian.Stepan@epa.gov.

Dear Mr. Nevshehirlian,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action. The DAF is currently considering two proposed alternatives: Alternative 1, the Preferred Alternative (Figure 3), and the No Action Alternative. Alternative 1 would construct asphalt shoulders per UFC standards along the runway and designated taxiways, construct underground stormwater detention areas on the airfield infield in accordance with state and federal stormwater requirements, support Bird/Wildlife Aircraft Strike Hazard requirements, avoid damaging the existing runway and taxiway edge lighting, and be phased in a manner that does not significantly impact scheduled flight operations. The No Action Alternative, which reflects the status quo, is analyzed as a benchmark against which effects of the Proposed Action can be evaluated.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. This information and your comments on the Proposed Action will help us develop the scope of our environmental review.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

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Date: 2022.04.20 10:26:47 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

3 Attachments:

1. Figure 1. Location of Joint Base Langley-Eustis, Virginia, and Surrounding Area
2. Figure 2. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield
3. Alternative 1 for Runway and Taxiway Shoulders Joint Base Langley-Eustis – Langley Air Force Base

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Andrew Griffey
Hampton Wetland Board
22 Lincoln Street
Hampton, Virginia 23669-3522

Dear Mr. Griffey,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings

would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action. The DAF is currently considering two proposed alternatives: Alternative 1, the Preferred Alternative (Figure 3), and the No Action Alternative. Alternative 1 would construct asphalt shoulders per UFC standards along the runway and designated taxiways, construct underground stormwater detention areas on the airfield infield in accordance with state and federal stormwater requirements, support Bird/Wildlife Aircraft Strike Hazard requirements, avoid damaging the existing runway and taxiway edge lighting, and be phased in a manner that does not significantly impact scheduled flight operations. The No Action Alternative, which reflects the status quo, is analyzed as a benchmark against which effects of the Proposed Action can be evaluated.

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Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

3 Attachments:

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2. Figure 2. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield
3. Alternative 1 for Runway and Taxiway Shoulders Joint Base Langley-Eustis – Langley Air Force Base

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Christopher DeHart
Environmental Services Manager
419 North Armistead Avenue
Hampton, Virginia 23669-3475

Dear Mr. DeHart,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings

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Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Mayor Gordon Helsel
City of Poquoson, Virginia
500 City Hall Avenue
Poquoson, Virginia 23662-1996

Dear Mayor Helsel,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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Date: 2022.04.21 08:10:50 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

J. Randall Wheeler
City Manager
500 City Hall Avenue
Poquoson, Virginia 23662-1996

Dear Mr. Wheeler,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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The EA will analyze the potential range of environmental impacts that would result from the Proposed Action. The DAF is currently considering two proposed alternatives: Alternative 1, the Preferred Alternative (Figure 3), and the No Action Alternative. Alternative 1 would construct asphalt shoulders per UFC standards along the runway and designated taxiways, construct underground stormwater detention areas on the airfield infield in accordance with state and federal stormwater requirements, support Bird/Wildlife Aircraft Strike Hazard requirements, avoid damaging the existing runway and taxiway edge lighting, and be phased in a manner that does not significantly impact scheduled flight operations. The No Action Alternative, which reflects the status quo, is analyzed as a benchmark against which effects of the Proposed Action can be evaluated.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. This information and your comments on the Proposed Action will help us develop the scope of our environmental review.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

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Date: 2022.04.21 08:11:27 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

3 Attachments:

1. Figure 1. Location of Joint Base Langley-Eustis, Virginia, and Surrounding Area
2. Figure 2. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield
3. Alternative 1 for Runway and Taxiway Shoulders Joint Base Langley-Eustis – Langley Air Force Base

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Nicole Woodward
Regulatory Branch
US Army Corps of Engineers
803 Front Street
Norfolk, Virginia 23510-1011

Dear Ms. Woodward,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced

according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Keith Boyd
USDA-NRCS
203 Wimbledon Lane
Smithfield, Virginia 23460-0620

Dear Mr. Boyd,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Cindy Schulz
U.S. Fish and Wildlife Service - Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
Submitted via email to cindy_schulz@fws.gov and virginiafieldoffice@fws.gov.

Dear Ms. Schulz,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

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In preparation of the EA, we will obtain details of federally listed, proposed, and candidate species or designated or proposed critical habitats that may be in the action area from the US Fish and Wildlife Service Information for Planning and Consultation website. Pursuant to Section 7 of the Endangered Species Act, we request additional information or any comments that may be beneficial in the development of the EA and for determination of potential impacts to listed species or critical habitat. This information and your comments on the Proposed Action will help us develop the scope of our environmental review.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Bettina Rayfield
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street
Richmond, Virginia 23219-2405

Dear Ms. Rayfield,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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Date: 2022.04.20 10:26:15 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Frances Greenway
Environmental Services Section
Virginia Department of Wildlife Resources
4010 West Broad Street
Richmond, Virginia 23230-3916
Submitted via email to ESSProjects@dwr.virginia.gov.

Dear Ms. Greenway,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Tony Watkinson
Chief
Habitat Management Division
Virginia Marine Resources Commission
380 Fenwick Road, Building 96
Fort Monroe, Virginia 23651-1064

Dear Mr. Watkinson,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

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Date: 2022.04.20 10:27:15 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 633D AIR BASE WING
JOINT BASE LANGLEY-EUSTIS VA

20 April 2022

Neil Morgan
York County Commissioner
P.O. Box 532
Yorktown, Virginia 23690-0532

Dear Mr. Morgan,

We are contacting you in hopes of obtaining inputs on the potential impacts from our Department of the Air Force (DAF) proposal for Runway 08-26 and taxiway shoulders construction at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (Figures 1 and 2). In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the DAF's Environmental Impact Analysis Process (32 CFR 989), the DAF is in the process of preparing an Environmental Assessment (EA) to assess the potential environmental impacts of the Proposed Action.

The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings

would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action. The DAF is currently considering two proposed alternatives: Alternative 1, the Preferred Alternative (Figure 3), and the No Action Alternative. Alternative 1 would construct asphalt shoulders per UFC standards along the runway and designated taxiways, construct underground stormwater detention areas on the airfield infield in accordance with state and federal stormwater requirements, support Bird/Wildlife Aircraft Strike Hazard requirements, avoid damaging the existing runway and taxiway edge lighting, and be phased in a manner that does not significantly impact scheduled flight operations. The No Action Alternative, which reflects the status quo, is analyzed as a benchmark against which effects of the Proposed Action can be evaluated.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. This information and your comments on the Proposed Action will help us develop the scope of our environmental review.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil within 30 days of receipt of this letter.

JENNINGS.DAVID.M.1189439110 Digitally signed by JENNINGS.DAVID.M.1189439110 Date: 2022.04.20 10:27:48 -04'00'

DAVID M JENNINGS
Chief, Environmental Element
633d Civil Engineer Squadron

3 Attachments:

1. Figure 1. Location of Joint Base Langley-Eustis, Virginia, and Surrounding Area
2. Figure 2. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield
3. Alternative 1 for Runway and Taxiway Shoulders Joint Base Langley-Eustis – Langley Air Force Base

Figure 1. Location of Joint Base Langley-Eustis – Langley Air Force Base and Surrounding Area

Figure 2. Runway 08-26 at the Joint Base Langley-Eustis – Langley Air Force Base Airfield

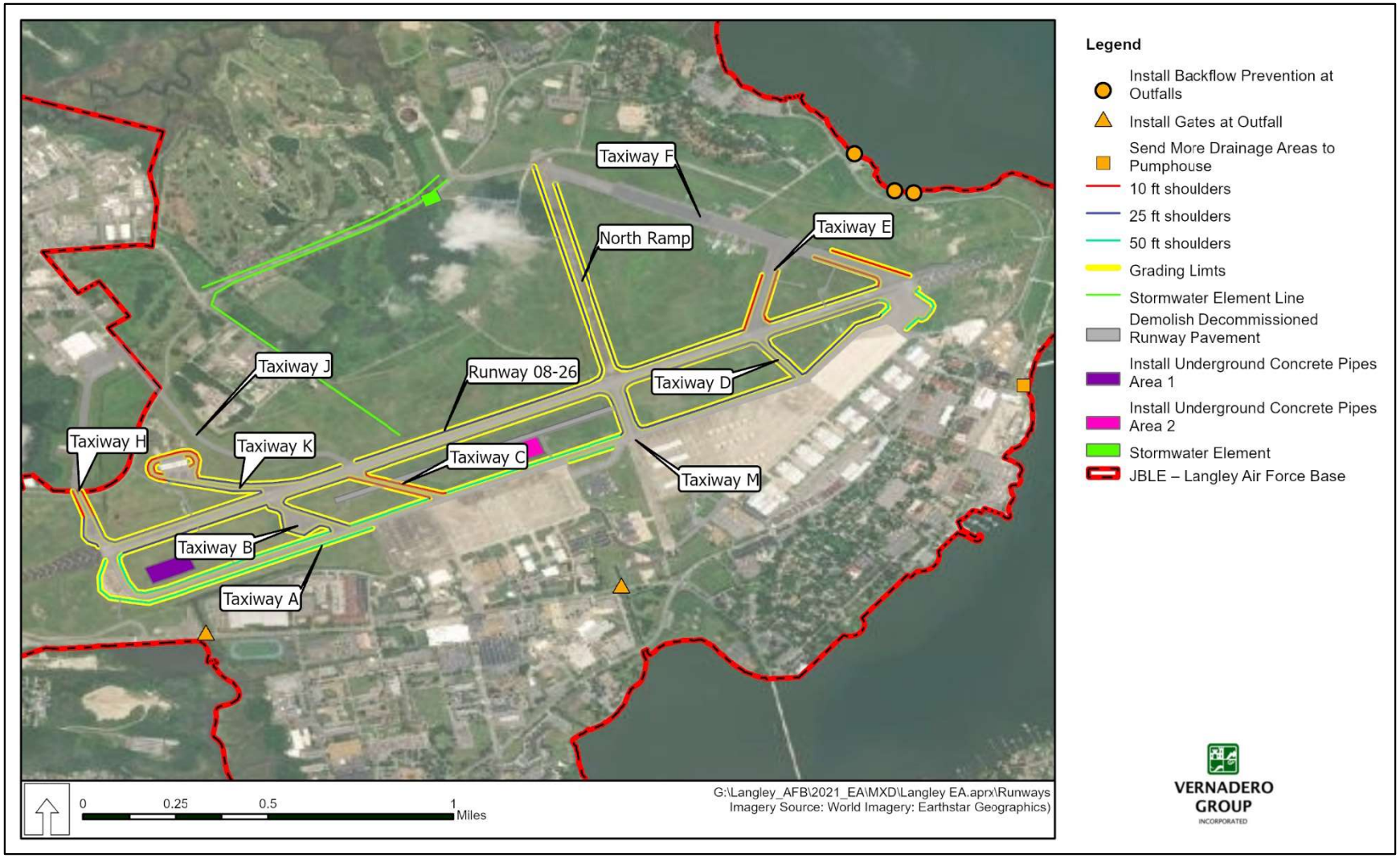

Figure 3. Alternative 1 for Runway and Taxiway Shoulders Joint Base Langley-Eustis – Langley Air Force Base

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From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:27 PM
To: wayne.adkins@chickahominytribe.org
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Chickahominy Indian Tribe
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Chief Adkins,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

Figure 1. Runway 08-26 at the JBLE-Langley Airfield

Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:43 PM
To: klucas@delawarenation-nsn.gov
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Delaware Nation
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Katelyn Lucas,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:29 PM
To: epaden@delawarenation-nsn.gov
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Delaware Nation
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Erin Paden,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:44 PM
To: keith.anderson@nansemond.org
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Nansemond Indian Nation
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Chief Anderson,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

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The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:47 PM
To: shaleigh.howells@pamunkey.org
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Pamunkey Indian Tribe
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Director Howells,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

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Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 12:49 PM
To: environment@umitribe.org
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Upper Mattaponi Indian Tribe
Attachments: Figure 1. Runway 08-26 at the JBLE-Langley Airfield.pdf; Figure 2. Proposed Action for Runway and Taxiway Shoulders JBLE-Langley.pdf

Dear Leigh Mitchell,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

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The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

From:	Shaleigh Howells
To:	JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE
Cc:	Carey Perry
Subject:	[External] - RE: JBLE Runway and Taxiway Shoulders Tribal Coordination - Pamunkey Indian Tribe
Date:	Sunday, April 24, 2022 12:43:50 PM
Attachments:	image001.png

Good afternoon Sherry,

Thank you for your outreach on this project. The Pamunkey Indian Tribe does not have any comments to share at this time based on the current scope of the proposed project. However, we ask to be notified in the event of inadvertent discovery in connection with site activity.

Respectfully,

Shaleigh R. Howells
"SHAY-lee" ¦ she/her/hers
Cultural Resource Director and Museum Director
Pamunkey Indian Tribal Resource Office
1054 Pocahontas Trail, King William, VA 23086
Phone: 804.885.5207 Fax: 866.422.3387
www.pamunkey.org

PAMUNKEY Indian Museum & Cultural Center
Pamunkey Indian Reservation
175 Lay Landing Road, King William, VA 23086
804.843.4792 | Museum@Pamunkey.org

From: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Sent: Thursday, April 21, 2022 1:47 PM
To: Shaleigh Howells <shaleigh.howells@pamunkey.org>
Cc: Carey Perry
Subject: JBLE Runway and Taxiway Shoulders Tribal Coordination - Pamunkey Indian Tribe

Dear Director Howells,

The Department of the Air Force (DAF) is preparing a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the proposed construction of Runway 08-26 and taxiway shoulders at Joint Base Langley-Eustis (JBLE) – Langley Air Force Base (JBLE – Langley), Virginia (see attached

Figure 1). The purpose of the Proposed Action is to bring Runway 08-26 and its taxiways into compliance with Unified Facilities Criteria (UFC) 3-260-01. With only approximately 15 percent of the airfield edges abutted by shoulders, Runway 08-26 is noncompliant with UFC 3-260-01, making JBLE – Langley the only continental United States air base without a full complement of airfield shoulders. The Proposed Action is needed because there are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies.

The Proposed Action consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways. UFC 3-260-01 requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights. The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished, and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate. Any unsuitable materials found in the area beneath the new pavement would be undercut and replaced with suitable fill. All excavation or undercut materials would be stored on site. If any contaminated soils are encountered, these soils would be hauled offsite and disposed of according to federal, state, and local regulations, or remediated on site.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater components would be implemented and could include off-airfield water quality swales that would treat roadway drainage and soil amendments for sheet flow off the proposed shoulders. Best Management Practices and erosion control measures described in JBLE – Langley's Stormwater Pollution Prevention Plan would be implemented as part of the Proposed Action.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321, *et seq.*), the Council of Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Process (32 CFR 989). We invite you to engage in government-to-government consultation and request your concurrence with the Area of Potential Effects (APE) as defined in Figure 2 (see attached). We also ask your assistance in identifying historic properties or areas of religious and cultural significance to your tribe within the APE.

Please forward any comments or questions about this proposal to Ms. Sherry Johnson at sherry.johnson.4@us.af.mil. Providing any comments to Ms. Johnson at your earliest convenience will provide us the opportunity to consider your input more fully.

Sincerely,

Sherry M. Johnson
NEPA & Cultural Resources Program Manager
633rd Civil Engineer Squadron
Joint Base Langley-Eustis
Office Phone: (757) 225-4223

COUNTY ADMINISTRATOR
Neil A. Morgan

York County
VIRGINIA
America's Future Since 1781

May 4, 2022

Mr. David M. Jennings
Chief, Environmental Element
633rd Civil Engineering Squadron
Joint Base Langley-Eustis VA 23665

Dear Mr. Jennings:

Subject: LAFB Runway Improvements

Thank you for your letter dated 20 April 2022, in which you informed us of the potential shoulder improvements to Runway 08-26 and the associated taxiway. York County is unaware of any environmental impacts concerning this project. As this runway is not in York County, we do not have any concerns with this project.

If we can be of any further assistance, please contact Joseph Brogan, Chief of Stormwater Programs, at (757) 890-3831.

Sincerely,

Neil A. Morgan
County Administrator

JPB: lm

From: Parker Frede
Sent: Thursday, April 28, 2022 4:51 PM
To: 633 CES/CEIE NEPA Public Comment <633CES.CEIE.NEPAPublicComment@us.af.mil>
Subject: [Non-DoD Source] Runway Improvements

Hello -

We should definitely move forward with runway improvements. Flood plain shouldn't be an issue, the investment is well worth it.

Thanks,

Parker

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482 FAX (804) 698-4178
www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

May 9, 2022

Ms. Sherry Johnson
Department of the Air Force
Joint Base Langley-Eustis, Virginia
Sherry.johnson.4@us.af.mil

RE: Runway 08-26 and taxiway shoulders construction, Joint Base Langley-Eustis, Virginia

Dear Ms. Johnson:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. Similarly, DEQ-OEIR coordinates Virginia's review of federal consistency documents prepared pursuant to the Coastal Zone Management Act which applies to all federal activities which are reasonably likely to affect any land or water use or natural resources of Virginia's designated coastal resources management area must be consistent with the enforceable policies Virginia Coastal Zone Management (CZM) Program.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the environmental documents, notification should be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (25 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITA LFT file share system (Requires an "invitation" for access. An invitation request should be sent to eir@deq.virginia.gov.). We request that the review of these documents be done concurrently, if possible.

The environmental documents should include U.S. Geological Survey topographic maps as part of their information. We strongly encourage you to issue shape files with the NEPA document. In addition, project details should be adequately described for the benefit of the reviewers.

ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT: PROJECT SCOPING AND AGENCY INVOLVEMENT

As you may know, NEPA (PL 91-190, 1969) and its implementing regulations (Title 40, *Code of Federal Regulations*, Parts 1500-1508) requires a draft and final Environmental Impact Statement (EIS) for federal activities or undertakings that are federally licensed or federally funded which will or may give rise to significant impacts upon the human environment. An EIS carries more stringent public participation requirements than an Environmental Assessment (EA) and provides more time and detail for comments and public decision-making. The possibility that an EIS may be required for the proposed project should not be overlooked in your planning for this project. Accordingly, we refer to "NEPA document" in the remainder of this letter.

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Accordingly, we are providing notice of your scoping request to several state agencies and those localities and Planning District Commissions, including but not limited to:

Department of Environmental Quality:
- DEQ Regional Office*
- Air Division*
- Office of Wetlands and Stream Protection*
- Office of Local Government Programs*
- Division of Land Protection and Revitalization
- Office of Stormwater Management*

Department of Conservation and Recreation
Department of Health*
Department of Agriculture and Consumer Services
Department of Wildlife Resources*
Virginia Marine Resources Commission*
Department of Historic Resources
Department of Mines, Minerals, and Energy
Department of Forestry
Department of Transportation

Note: The agencies noted with a star (*) administer one or more of the enforceable policies of the Virginia CZM Program.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the federal Coastal Zone Management Act of 1972, as amended, and its implementing regulations in Title 15, *Code of Federal Regulations*, Part 930, federal activities, including permits, licenses, and federally funded projects, located in Virginia's Coastal Management Zone or those that can have reasonably foreseeable effects on Virginia's coastal uses or coastal resources must be conducted in a manner which is consistent, to the maximum extent practicable, with the Virginia CZM Program.

Additional information on the Virginia's review for federal consistency documents can be found online at https://www.deq.virginia.gov/permits-regulations/environmental-impact-review/federal-consistency

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems

  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:
  - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)

  Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
  - http://128.172.160.131/gems2/

- MARCO Mid-Atlantic Ocean Data Portal

  The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.

  http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true

- DHR Data Sharing System.

  Survey records in the DHR inventory:

  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

  Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- DWR Fish and Wildlife Information Service

  Information about Virginia's Wildlife resources:
  - http://vafwis.org/fwis/

- Total Maximum Daily Loads Approved Reports
  - https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx

- Virginia Outdoors Foundation: Identify VOF-protected land
    - http://vof.maps.arcgis.com/home/index.html

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

  Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:
    - www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

  Information on hazardous waste facilities:
    - www.epa.gov/enviro/facts/rcrainfo/search.html

- EPA Envirofacts Database

  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
    - www.epa.gov/enviro/index.html

- EPA NEPAssist Database

  Facilitates the environmental review process and project planning:
  http://nepaassisttool.epa.gov/nepaassist/entry.aspx

If you have questions about the environmental review process and/or the federal consistency review process, please feel free to contact me (telephone (804) 659-1915 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities

From: Woodward, Nicole L CIV USARMY CENAO (USA) <Nicole.L.Woodward@usace.army.mil>
Sent: Tuesday, June 7, 2022 3:19 PM
To: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Cc: JENNINGS, DAVID M GS-13 USAF ACC 633 CES/CEIE <david.jennings.4@us.af.mil>
Subject: Request for Comments regarding the Runway 08-26 and taxiway shoulders construction

Good afternoon,

Sorry for the delayed response to your request for comments regarding the Runway 08-26 improvements. One November 26, 2019, the Corps issued a wetland delineation confirmation for the entire installation which identified aquatic resources which may fall under the jurisdiction of the Corps and require permits from our office to impact those areas. On June 18, 2018, the USAF was issued an Individual Permit for impacts associated with airfield drainage improvements surrounding the runway and this permit does not expire until June 21, 2028. As some of these impacts may overlap, any new proposed wetland or waters impacts that are not covered under the existing permit may require additional authorization, including modifications to the existing permit. Additional wetland and waters impacts may also require additional mitigation and could be considered cumulatively with other impacts that have occurred on site. Should the proposed project be determined single and complete and requiring a new separate permit authorization then the USAF may also be designated as the lead federal agency for the proposed work.

USACE will participate as a cooperating agency in the preparation of the Environmental Assessment (EA). We recommend coordination with the Cooperating Agencies of draft sections of the EA prior to publishing the document. Such coordination will help to minimize future delays or problems that can be addressed earlier in the process. We wish to participate in any interagency meetings and field reviews for this project to the extent possible.

We would like to emphasize that before you develop and evaluate alternatives, waters and wetlands should be identified and mapped, and you should document how impacts to aquatic resources are avoided and minimized by the preliminary alternatives you identify. We request regular coordination with the appropriate state and Federal agencies prior to making any decisions regarding the range and elimination of alternatives. While USACE recommends a current jurisdictional determination, you should consider, at a minimum, all available information such as aerial photography, U.S.G.S. quad sheets, National Wetland Inventory (NWI) maps, and soil mapping of the study area, as well as review of aerial photography (including color infrared aerials) by a qualified reviewer. Should USAF perform the assessment of jurisdictional areas through remote sensing, USACE recommends field verification of any areas which USAF notes need further evaluation. The more accurate the delineation, the better for the purposes of alternative analysis and project development that incorporates avoidance and minimization of aquatic resources. USACE understands that due to the purpose of improving existing facilities, alternative options may be constrained, however, additional alternatives must be developed and examined.

Our regulations require that we consider a full range of public interest factors and conduct an alternatives analysis in order to identify the least environmentally damaging practicable alternative (LEDPA), which is the only alternative we can authorize.

In addition to wetland and waters impacts, we must consider factors such as land use (including displacements of homes and businesses), floodplain hazards and values, water supply and conservation,

water quality, safety, cost, economics, threatened and endangered species, historic and cultural resources, and environmental justice.

Thank you for the opportunity to provide comments.

Please note that we are experiencing delayed review times due to increased workload. More information can be found at https://www.nao.usace.army.mil/Media/Public-Notices/Article/2845067/cenao-wrr/ .

Nicole Woodward, Environmental Scientist
Project Manager- Southern Virginia Regulatory Section

US Army Corps of Engineers - Norfolk District Regulatory Office
803 Front Street
Norfolk, Virginia 23510
Office: (757) 201-7122
Mobile: (757) 837-2648
Fax: (757) 201-7678

The Norfolk District is committed to providing the highest level of support to the public. In order for us to better serve you, we would appreciate you completing our Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/. We value your comments and appreciate your taking the time to complete the survey.

From: ImpactReview <impactreview@vof.org>
Sent: Wednesday, May 11, 2022 2:44 PM
To: Fulcher, Valerie <valerie.fulcher@deq.virginia.gov>; JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Cc: rr Environmental Impact Review <eir@deq.virginia.gov>
Subject: [Non-DoD Source] RE: NEW SCOPING JBLE Runway 08-26

Ms. Johnson,

The Virginia Outdoors Foundation has reviewed the project referenced above. As of May 11, 2022, there are not any existing nor proposed VOF open-space easements in the immediate vicinity of the project.

Please contact VOF again for further review if the project area changes or if this project does not begin within 24 months. Thank you for considering conservation easements.

Thanks,
Mike

Mike Hallock-Solomon, AICP
Virginia Outdoors Foundation

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

MEMORANDUM

TO: Sherry Johnson, Department of the Air Force (sherry.johnson.4@us.af.mil)

CC: DEQ, Office of Environmental Review (eir@deq.virginia.gov)

FROM: Amber Foster, DEQ Principal Environmental Planner

DATE: May 13, 2022

SUBJECT: DEQ Scoping Request – Runway 08-26 and taxiway shoulders construction, Joint Base Langley-Eustis, Virginia

We have reviewed the documentation for the proposed project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

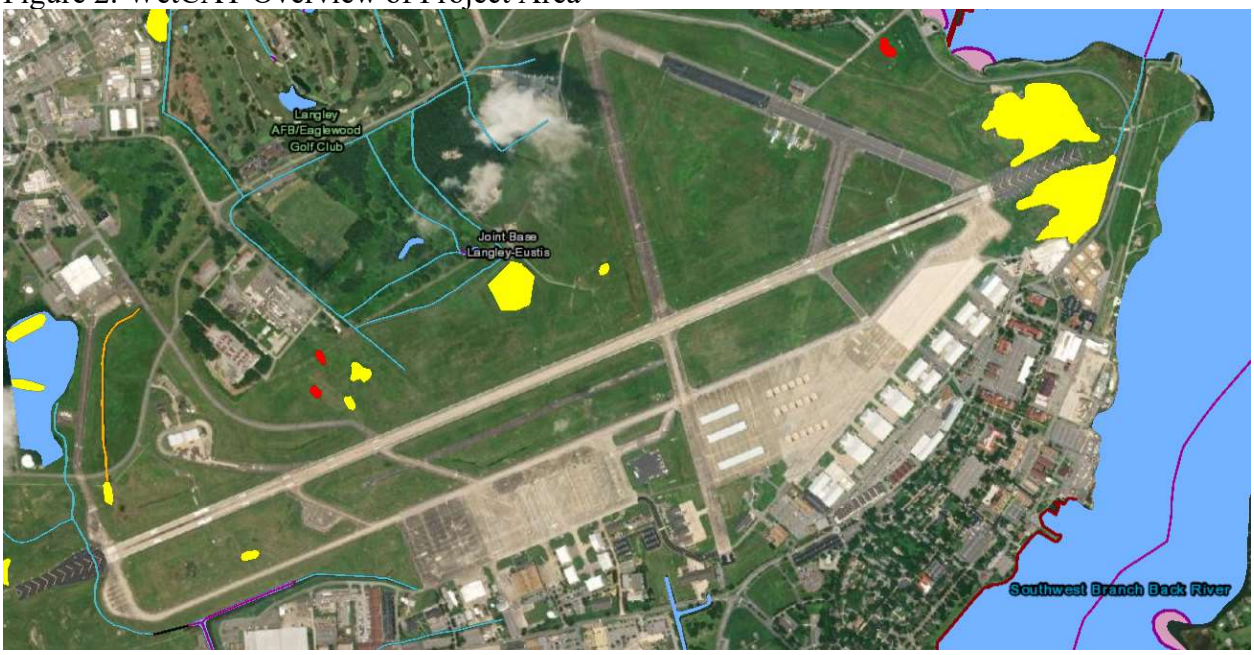
In the City of Hampton, the areas protected by the Chesapeake Bay Preservation Act (CBPA), as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs), Resource Management Areas (RMAs), and Intensely Developed Areas (IDAs), as designated by the City. RPAs include tidal wetlands, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria than RPAs, include all lands contiguous to the inland boundary of the RPA and which, if not properly managed, have a potential for degrading water quality or diminishing the functional value of the RPA. The City of Hampton's designated RMA consists of those areas of the city not classified as the RPA and contiguous to the variable width buffer for a distance of 100 feet in the landward direction. The City also designated an IDA as an overlay to the RPA where development is concentrated and little of the natural environment remains, as delineated on their Chesapeake Bay Preservation Area map.

The proposed project offered for scoping comments by Department of the Air Force consists of the construction of asphalt pavement shoulders along the borders of Runway 08-26 and various taxiways spurring off this runway in order to be consistent with Unified Facilities Criteria (UFC)

3-260-01 (see Figure 1). UFC requires a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least two feet of paved surface beyond runway edge lights.

Figure 1. Department of the Air Force, Langley Air Force Base Proposed Project Area

Figure 2. WetCAT Overview of Project Area



The taxiways require a paved shoulder width of 10 feet or greater; 25 feet or greater is required on the outside of any turn equal to or greater than 90 degrees. In addition to the expanded shoulders, the project includes the demolition of the existing shoulder and the construction of underground stormwater detention areas on the airfield infield in accordance with state and federal stormwater requirements.

Based on a desktop review using the online GIS tool Wetland Condition Assessment Tool (WetCAT), see Figure 2, DEQ observed that the project area's natural and anthropogenic water features consists of intermittent streams, isolated non-tidal wetlands, and a ditch. The project's stormwater underground stormwater detention areas and element line to the north of Runway 08-26 will feed into the intermittent streams on the site. Based on the required features that define the RPA, the site does not appear to encroach upon or lie adjacent to lands analogous to RPA, and subsequently no locally-designated RMA features. As such, the project is not subject to the Regulations.

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Thursday, May 12, 2022 10:31 AM
To: JOHNSON, SHERRY M GS-12 USAF ACC 633 CES/CEIE <sherry.johnson.4@us.af.mil>
Cc: rr Environmental Impact Review <eir@deq.virginia.gov>
Subject: [Non-DoD Source] Re: NEW SCOPING JBLE Runway 08-26

Project Name: NEW SCOPING JBLE Runway 08-26
Project #: N/A
UPC #: N/A
Location: Hampton & Newport News VA

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

There are no public groundwater wells within a 1-mile radius of the project site.

The following surface water intakes are located within a 5 mile radius of the project site:

PWS ID Number	System Name	Facility Name
3700500	NEWPORT NEWS, CITY OF	HARWOOD MILL

The project is not within the watershed of any public surface water intakes.

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene F. Warren
GIS Program Support Technician
Virginia Department of Health, Office of Drinking Water
109 Governor Street, 6th Floor
Richmond, VA 23219
804-356-6658 (office/cell/text)

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Appendix B

Reasonably Foreseeable Future Actions

Appendix B

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Appendix B

This section identifies reasonably foreseeable future and recently completed nearby projects that could cumulatively affect environmental resources in conjunction with the Proposed Action. Actions identified in **Table B-1** would not interact with all resources; therefore, resources that could potentially result in direct or indirect cumulative impacts with the addition of the Proposed Action are noted in **Table B-1.**

Table B-1. Reasonably Foreseeable Projects at and near Joint Base Langley-Eustis — Langley Air Force Base

Project	Project Summary	Time Frame	Relevance to Proposed Action	Resource Interaction
On-Base Actions				
Fighter Ramp Weather Shelters	Project would construct five weather shelters in the fighter ramp area of JBLE –Langley.	Future	Would primarily affect land use, aesthetics and visual resources, earth resources, transportation, infrastructure and utilities, and potential fish and wildlife habitat on JBLE – Langley.	Aesthetics and Visual Resources, Air Quality, Earth Resources, Biological Resources
Aerial Application of Pesticides	Project would apply pesticides using aerial application methods for control of mosquitos and invasive plant species at JBLE – Langley.	Future (EA is currently being prepared)	Would primarily affect air quality, water resources, and potential fish and wildlife habitat on JBLE – Langley.	Water Resources, Air Quality, Biological Resources
Wildfire Management Plan Implementation	Project would implement JBLE – Langley's approved WFMP, which outlines a coordinated approach to wildfire response and wildfire risk mitigation that includes the JBLE – Langley 633d CES Fire and Emergency Services Fire Chief and natural resources staff, as well as the Air Force Wildland Fire Branch.	Future (EA is currently being prepared)	Would primarily affect airspace, air quality and climate change, aesthetics and visual resources; soils, vegetation/wildlife habitat; ground and surface water supplies and quality, the coastal zone, wildlife populations, and health and safety, and wetlands and floodplains	Aesthetics and Visual Resources, Air Quality, Earth Resources, Water Resources, Biological Resources
FTU F-22 Weather Shelters	Project would construct 19 weather shelters on JBLE – Langley.	Present (project is 10 percent complete)	Would primarily affect land use, aesthetics and visual resources, earth resources, transportation, infrastructure and utilities, and potential fish and wildlife habitat on JBLE – Langley.	Aesthetics and Visual Resources, Air Quality, Earth Resources, Biological Resources
Taxiway Repair	Project would make repairs to Taxiway Alpha, including the removal of concrete slabs, on JBLE –Langley.	Present (project is 5 percent complete)	Would primarily affect earth resources, transportation, infrastructure and utilities, and potential fish and wildlife habitat on JBLE – Langley.	Air Quality, Earth Resources, Water Resources, Biological Resources

Appendix B

Project	Project Summary	Time Frame	Relevance to Proposed Action	Resource Interaction
Fifth Generation Formal Training Unit Optimization	Project would implement two proposed actions: 1) beddown of the F-22 FTU mission at JBLE – Langley consisting of 28 PAA and three BAI F-22 aircraft and 16 PAA T-38 aircraft; 2) beddown of an additional F-35A FTU squadron at Eglin Air Force Base consisting of 26 F-35A aircraft (24 PAA and two BAI).	Future (EIS was finalized in February 2021); F-22 FTU is anticipated to begin arriving at JBLE-Langley in Summer 2023	Would primarily affect land use, aesthetics and visual resources, earth resources, transportation, infrastructure and utilities, and potential fish and wildlife habitat on JBLE – Langley.	Aesthetics and Visual Resources, Air Quality, Earth Resources, Biological Resources
ISR Campus Development Project	Project includes consolidation of ISR functions into one walkable campus and connected quads. It is in the planning stages for future development. Several proposed projects include new facility construction, upgrades to roadways, and repurposing of facilities.	Future (Final Develop-ment Plan completed in 2019)	Would primarily affect land use, aesthetics and visual resources, earth resources, transportation, infrastructure and utilities, and potential fish and wildlife habitat on JBLE – Langley.	Air Quality, Water Resources (wetlands), Earth Resources, Biological Resources
Off-Base Actions				
US Navy Atlantic Fleet Training and Testing	Navy proposal to conduct military readiness training activities using active sonar and explosives within existing range complexes and areas located in the Atlantic Ocean, Caribbean Sea, and the Gulf of Mexico.	Present (Final EIS was completed in 2018.)	Would primarily affect visual and aesthetic resources, air quality, noise, transportation, infrastructure, and utilities, and biological resources.	Aesthetics and Visual Resources, Air Quality, Noise, Transportation, Infrastructure, and Utilities, Biological Resources
VDOT Wythe Creak Road (Route 172 Widening Project)	The Hampton portion of the project includes widening Wythe Creek Road to three lanes, curb and gutter installation, and a 10-foot sidewalk to the east side of the expanded roadway. This project also includes widening the causeway and bridge over Wythe Creek. In Poquoson, an 8-foot sidewalk will be constructed on the east side of the road and a 5-foot sidewalk will be constructed on the west side of the road from the Cary's Chapel intersection to the northern project limit of the project approximately 2,000 feet south of Victory Boulevard.	Present (estimated completion in fall 2025)	Would primarily affect air quality, noise, transportation, infrastructure, and utilities, and biological resources.	Air Quality, Noise, Transportation, Infrastructure, and Utilities, Biological Resources

Appendix B

Project	Project Summary	Time Frame	Relevance to Proposed Action	Resource Interaction
VDOT Hampton Roads Bridge-Tunnel Expansion Project	This project is the largest highway construction project in Virginia's history. It will widen the current four-lane segments along nearly 10 miles of the Interstate 64 corridor in Norfolk and Hampton, with new twin tunnels across the harbor. The expansion will increase capacity, ease major congestion, and enhance travel time reliability.	Present (estimated completion in November 2025)	Would primarily affect air quality, noise, transportation, infrastructure, and utilities, and biological resources.	Air Quality, Noise, Transportation, Infrastructure, and Utilities, Biological Resources
VDOT Denbigh Boulevard Bridge Replacement	This project will replace the Denbigh Boulevard Bridge over Interstate 64 and CSX Railway between Warwick Boulevard and Jefferson Avenue in Newport News with a new bridge that meets current geometric and design standards. The project includes demolition of the existing bridge and construction of a new bridge with four 12-foot lanes, a 16-foot raised median and two 8.5-foot sidewalks, as well as new roadway approaches and stormwater management facilities.	Present (estimated completion in spring 2023)	Would primarily affect air quality, noise, transportation, infrastructure, and utilities, and biological resources.	Air Quality, Noise, Transportation, Infrastructure, and Utilities, Biological Resources

JBLE – Langley – Joint Base Langley-Eustis, Langley Air Force Base; **EA** – Environmental Assessment; **WFMP** – Wildfire Management Plan; **CES** – Civil Engineer Squadron; **PAA** – Primary Aerospace Vehicle Authorized; **BAI** – Backup Aerospace Vehicle Inventory; **EIS** – Environmental Impact Statement; **ISR** – Intelligence, Surveillance, and Reconnaissance; **VDOT** – Virginia Department of Transportation

Appendix B

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Appendix C

National Environmental Policy Act Supporting Documentation

Appendix C

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Air Quality Emissions Calculations and Air Conformity Applicability Analysis

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Air Quality Emissions Calculations and Air Conformity Applicability Analysis

ASSUMPTIONS

The following are assumptions used in the air quality analysis for the Proposed Action:

1. The proposed construction timeline for the various elements of the Proposed Action would occur over a 2-year timeframe. However, for air quality analysis, the proposed construction projects are assumed to occur within a single calendar year to provide a conservative estimate of emissions. The duration of the construction project is assumed to be 12 months from the assumed start date of January 2024. For operational emissions, the start date is assumed to be the beginning of the year following completion of construction (January 2025) and would occur indefinitely.
2. The calculations assumed there were no controls used to reduce fugitive emissions. It is assumed that reasonable mitigation measures would be used during construction and demolition activities to reduce particulate matter emissions.
3. Construction phase emissions for the Proposed Action Alternative 1 are included for demolition, grading, trenching, construction, and paving. Operational emissions are for the emergency generator that is assumed for installation at the new pump station.
4. Includes assumption that trenching for pipeline installation would require disturbing a width of three times the diameter of the piping being installed.
5. Where site-specific data was not available, dimensions are assumed based on best engineering judgement. In addition, for example, dimensions of the proposed well storage footprint would be approximately 30 feet in diameter and the proposed pump station would be 30 feet by 15 feet.
6. Flights operations and associated activities are not anticipated to change because of the proposed project construction. Therefore, operation emissions would not change compared to current conditions. No further analysis is performed.
7. In the absence of square footage data for demolition, an estimate of the area proposed for demolition was derived from design diagrams and online maps or were estimated based on an engineering judgment.
8. If the square footage for construction, renovation or land disturbance was available, then it was used for ACAM modeling. In the absence of square footage data for construction, an estimate of the area proposed for construction was derived from design diagrams and online maps.
9. Duration of construction phase activities was estimated based on the area proposed for construction or renovation.
10. For grading, if data on the amount of material hauled in and hauled out (in cubic yards) was provided by the facility, then it was used in ACAM. In the absence of this data, it has been estimated using the assumed depth and graded area. Fill depth for gravel and grading depth is assumed based on the type of project.
11. In the absence of trenching data, trenching in linear feet for utility was derived based on the size of the project. An estimated trench depth and trench width is assumed based on the nature of the project.
12. Emissions from personnel commute is not performed as no new personnel will be working at the new facilities upon completion of construction of this project.

ACAM Summary Report

Alternative 1: Primary Criteria Compliance with Water Quality Swales, Soil Amendments, Underground Pipes, and Backflow Prevention

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

a. Action Location:
Base: LANGLEY AFB
State: Virginia
County(s): York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

b. Action Title: Shoulder Construction for Runway 08-26 and Taxiways at Joint Base Langley Eustis – Langley AFB, Virginia

c. Project Number/s (if applicable): N/A

d. Projected Action Start Date: 1 / 2024

e. Action Description:

The need for the proposed shoulder construction for Runway 08-26 and its taxiways is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies (IFEs), or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

f. Point of Contact:
Name: Radhika Narayanan
Title: Envionmental Scientist
Organization: Versar Inc
Email: rnarayanan@versar.com
Phone Number:

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

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

Conformity Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.487	100	No
NOx	2.645	100	No
CO	2.863		
SOx	0.008		
PM 10	49.018		
PM 2.5	0.111		
Pb	0.000		
NH3	0.003		
CO2e	759.1		

2025

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.179	100	No
NOx	6.475	100	No
CO	1.720		
SOx	0.003		
PM 10	0.202		
PM 2.5	0.202		
Pb	0.000		
NH3	0.000		
CO2e	332.5		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.179	100	No
NOx	6.475	100	No
CO	1.720		
SOx	0.003		
PM 10	0.202		
PM 2.5	0.202		
Pb	0.000		
NH3	0.000		
CO2e	332.5		

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

Radhika

March 27, 2023

Radhika Narayanan, Envionmental Scientist DATE

Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration

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

a. Action Location:
Base: LANGLEY AFB
State: Virginia
County(s): York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

b. Action Title: Shoulder Construction for Runway 08-26 and Taxiways at Joint Base Langley Eustis – Langley AFB, Virginia

c. Project Number/s (if applicable): N/A

d. Projected Action Start Date: 1 / 2024

e. Action Description:

The need for the proposed shoulder construction for Runway 08-26 and its taxiways is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies (IFEs), or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

f. Point of Contact:
Name: Radhika Narayanan
Title: Envionmental Scientist
Organization: Versar Inc
Email: rnarayanan@versar.com
Phone Number:

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

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

Conformity Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.632	100	No
NOx	3.433	100	No
CO	3.659		
SOx	0.010		
PM 10	69.547		
PM 2.5	0.145		
Pb	0.000		
NH3	0.003		
CO2e	969.8		

2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Norfolk-Virginia Beach-Newport News (Hampton Roads), VA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

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

Radhika

_____ March 27, 2023_____

Radhika Narayanan, Envionmental Scientist DATE

ACAM Detail Report

Alternative 1: Primary Criteria Compliance with Water Quality Swales, Soil Amendments, Underground Pipes, and Backflow Prevention

1. General Information

- Action Location

Base: LANGLEY AFB
State: Virginia
County(s): York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Action Title: Shoulder Construction for Runway 08-26 and Taxiways at Joint Base Langley Eustis – Langley AFB, Virginia

- Project Number/s (if applicable): N/A

- Projected Action Start Date: 1 / 2024

- Action Purpose and Need:

The purpose of the proposed shoulder construction for Runway 08-26 and its taxiways at JBLE – Langley is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The current shoulder geometry does not meet Department of Defense (DoD) requirements. This is in noncompliance with Unified Facilities Criteria (UFC) 3-260 01, Airfield and Heliport Planning and Design (May 2020).

- Action Description:

The need for the proposed shoulder construction for Runway 08-26 and its taxiways is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies (IFEs), or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

- Point of Contact

Name: Radhika Narayanan
Title: Envionmental Scientist
Organization: Versar Inc
Email: rnarayanan@versar.com
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Runway and various taxiways shoulder project - Alternate 1
3.	Construction / Demolition	Stormwater Drainage Management Project - Alternative 1
4.	Emergency Generator	Backup Generator for Pump Station - Alternative 1

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

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Runway and various taxiways shoulder project - Alternate 1

- Activity Description:
Project involves the following:

1. Construction of asphalt pavements of shoulders along the borders of Runway 08-26 and various taxiways
2. Demolition of existing shoulder pavements and removal of existing decomissioned pavement near runway
3. Grading of areas for paving activity

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 7
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.388922
SO_x	0.005594
NO_x	2.117947
CO	2.093760
PM 10	43.842455

Pollutant	Total Emissions (TONs)
PM 2.5	0.092566
Pb	0.000000
NH_3	0.001929
CO_2e	564.8

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

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

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 442843
Height of Building to be demolished (ft): 1

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	3	8
Rubber Tired Dozers Composite	2	8

- Vehicle Exhaust

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

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

2.1.3 Demolition Phase Emission Factor(s)

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

Excavators Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

- Worker Trips Emissions per Phase

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

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

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

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

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 1
Number of Days: 15

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 2936395

Amount of Material to be Hauled On-Site (yd^3): 24717
Amount of Material to be Hauled Off-Site (yd^3): 0

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	2	8
Scrapers Composite	4	8
Tractors/Loaders/Backhoes Composite	2	8

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

2.2.3 Site Grading Phase Emission Factor(s)

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

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

- Worker Trips Emissions per Phase

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

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

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

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

2.3 Paving Phase

2.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 3
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 4
Number of Days: 15

2.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1334725

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

2.3.3 Paving Phase Emission Factor(s)

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

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

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

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

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

- Off-Gassing Emissions per Phase

$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location

County: York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Stormwater Drainage Management Project - Alternative 1

- Activity Description:

Project involves the following:

1. Construction of wet well storage, pump station, generator house, gates and backflow prevention at outfalls
2. Associated grading for construction activities, as above
3. Trenching/excavation of drainage areas, directed stormwater pipeline installation, and associated trenching for construction activities

- Activity Start Date

Start Month: 1
Start Month: 2024

- Activity End Date

Indefinite: False
End Month: 7
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)

Pollutant	Total Emissions (TONs)

VOC	0.098484
SO_x	0.001991
NO_x	0.526606
CO	0.769136
PM 10	5.175082

PM 2.5	0.018140
Pb	0.000000
NH_3	0.000748
CO_2e	194.3

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 0
Number of Days: 15

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 3194
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

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

- Construction Exhaust (default)

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

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

3.1.3 Site Grading Phase Emission Factor(s)

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

Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90

Other Construction Equipment Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

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

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

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

3.2 Trenching/Excavating Phase

3.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

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

3.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 516794
Amount of Material to be Hauled On-Site (yd^3): 9570
Amount of Material to be Hauled Off-Site (yd^3): 0

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

- Construction Exhaust (default)

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

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

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

3.2.3 Trenching / Excavating Phase Emission Factor(s)

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

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

3.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

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

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

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

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

3.3 Building Construction Phase

3.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 6
Number of Days: 0

3.3.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 3194
Height of Building (ft): 20
Number of Units: N/A

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

- Construction Exhaust (default)

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

- Vehicle Exhaust

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

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

- Vendor Trips

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

- Vendor Trips Vehicle Mixture (%)

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

3.3.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

3.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

- Worker Trips Emissions per Phase

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

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

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

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

- Vender Trips Emissions per Phase

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

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

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

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

4. Emergency Generator

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Backup Generator for Pump Station - Alternative 1

- Activity Description:
Assumed installation of emergency backup power for new Pump Station. Rated Capacity assumed to be 1000 kW. Assumed to run 500 hr/yr.

- Activity Start Date
Start Month: 1
Start Year: 2025

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.179000
SO_x	0.003125
NO_x	6.475000
CO	1.720000
PM 10	0.202250

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.202250
Pb	0.000000
NH_3	0.000000
CO_2e	332.5

4.2 Emergency Generator Assumptions

- Emergency Generator
Type of Fuel used in Emergency Generator: Diesel
Number of Emergency Generators: 1

- Default Settings Used: No

- Emergency Generators Consumption
Emergency Generator's Horsepower: 1000
Average Operating Hours Per Year (hours): 500

4.3 Emergency Generator Emission Factor(s)

- Emergency Generators Emission Factor (lb/hp-hr)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
0.000716	0.0000125	0.0259	0.00688	0.000809	0.000809			1.33

4.4 Emergency Generator Formula(s)

- Emergency Generator Emissions per Year
$AE_{POL} = (NGEN * HP * OT * EF_{POL}) / 2000$

AE_{POL}: Activity Emissions (TONs per Year)
NGEN: Number of Emergency Generators
HP: Emergency Generator's Horsepower (hp)
OT: Average Operating Hours Per Year (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hp-hr)

ACAM Detail Report

Alternative 2: Primary Criteria Compliance with Slot Drains and Underground Filtration

1. General Information

- Action Location

Base: LANGLEY AFB
State: Virginia
County(s): York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Action Title: Shoulder Construction for Runway 08-26 and Taxiways at Joint Base Langley Eustis – Langley AFB, Virginia

- Project Number/s (if applicable): N/A

- Projected Action Start Date: 1 / 2024

- Action Purpose and Need:

The purpose of the proposed shoulder construction for Runway 08-26 and its taxiways at JBLE – Langley is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The current shoulder geometry does not meet Department of Defense (DoD) requirements. This is in noncompliance with Unified Facilities Criteria (UFC) 3-260 01, Airfield and Heliport Planning and Design (May 2020).

- Action Description:

The need for the proposed shoulder construction for Runway 08-26 and its taxiways is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies (IFEs), or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

- Point of Contact

Name: Radhika Narayanan
Title: Envionmental Scientist
Organization: Versar Inc
Email: rnarayanan@versar.com
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	Runway and various taxiways shoulder project - Alternative 2
3.	Construction / Demolition	Stormwater Drainage Management Project - Alternative 2

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

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Runway and various taxiways shoulder project - Alternative 2

- Activity Description:
Project involves the following:

1. Construction of asphalt pavements of shoulders along the borders of Runway 08-26 and various taxiways. Shoulder widths are 10 ft, 25 ft or 50 ft for various taxiways
2. Removal of existing decomissioned pavement south of Runway 08-26
3. Grading of areas for paving activity

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 7
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.556911
SO_x	0.008177
NO_x	3.056990
CO	3.038380
PM 10	67.089720

Pollutant	Total Emissions (TONs)
PM 2.5	0.132011
Pb	0.000000
NH_3	0.002411
CO_2e	824.8

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

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

2.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 175452
Height of Building to be demolished (ft): 1

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Excavators Composite	3	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

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

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

2.1.3 Demolition Phase Emission Factor(s)

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

Concrete/Industrial Saws Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0357	0.0006	0.2608	0.3715	0.0109	0.0109	0.0032	58.544
Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

- Worker Trips Emissions per Phase

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

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

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

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

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

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

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft^2): 3363507
Amount of Material to be Hauled On-Site (yd^3): 30344
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	3	8
Scrapers Composite	6	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

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

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

2.2.3 Site Grading Phase Emission Factor(s)

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

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

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

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

2.3 Paving Phase

2.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 5
Number of Days: 19

2.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1638575

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

2.3.3 Paving Phase Emission Factor(s)

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

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0434	0.0007	0.2707	0.3772	0.0139	0.0139	0.0039	67.130
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1564	0.0026	0.9241	0.7301	0.0368	0.0368	0.0141	262.83
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**Pb**	**NH_3**	**CO_2e**
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

2.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

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

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

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

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

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: York; Hampton City
Regulatory Area(s): Norfolk-Virginia Beach-Newport News (Hampton Roads), VA

- Activity Title: Stormwater Drainage Management Project - Alternative 2

- Activity Description:
Project involves the following:

1. Construction of underground stormwater detention areas
2. Trenching/excavation for new slot drains, underground stormwater detention areas on the airfield infield, and
new runway lighting

- Activity Start Date
Start Month: 1
Start Month: 2024

- Activity End Date
Indefinite: False
End Month: 7
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.074826
SO_x	0.001509
NO_x	0.375537
CO	0.621020
PM 10	2.457328

Pollutant	Total Emissions (TONs)
PM 2.5	0.012716
Pb	0.000000
NH_3	0.000415
CO_2e	145.0

3.1 Trenching/Excavating Phase

3.1.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 0
Number of Days: 20

3.1.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 372700
Amount of Material to be Hauled On-Site (yd^3): 300
Amount of Material to be Hauled Off-Site (yd^3): 0

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

- Construction Exhaust (default)

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

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

3.1.3 Trenching / Excavating Phase Emission Factor(s)

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

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.634	000.007	000.676	005.626	000.017	000.015		000.033	00364.981
LDGT	000.819	000.010	001.163	008.688	000.019	000.017		000.034	00487.852
HDGV	001.292	000.015	002.999	025.303	000.045	000.040		000.045	00760.330
LDDV	000.265	000.003	000.321	003.488	000.007	000.006		000.008	00370.175
LDDT	000.567	000.005	000.859	007.093	000.008	000.008		000.008	00577.145
HDDV	000.970	000.014	009.604	003.036	000.373	000.343		000.031	01589.614
MC	002.482	000.008	000.828	015.260	000.029	000.026		000.051	00398.308

3.1.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

- Worker Trips Emissions per Phase

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

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

NE: Number of Construction Equipment

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

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

3.2 Building Construction Phase

3.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2024

- Phase Duration
Number of Month: 6
Number of Days: 0

3.2.2 Building Construction Phase Assumptions

- General Building Construction Information
Building Category: Office or Industrial
Area of Building (ft^2): 3194
Height of Building (ft): 20
Number of Units: N/A

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

- Construction Exhaust (default)

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

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

- Vehicle Exhaust Vehicle Mixture (%)

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

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

- Worker Trips Vehicle Mixture (%)

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

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

- Vendor Trips Vehicle Mixture (%)

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

3.2.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.220	003.283	000.007	000.006		000.023	00323.276
LDGT	000.358	000.003	000.388	004.597	000.009	000.008		000.024	00417.298
HDGV	000.706	000.005	001.021	015.119	000.022	000.019		000.045	00770.239
LDDV	000.112	000.003	000.133	002.524	000.004	000.004		000.008	00313.527
LDDT	000.253	000.004	000.380	004.330	000.007	000.006		000.008	00445.483
HDDV	000.493	000.013	004.921	001.743	000.169	000.155		000.028	01496.485
MC	002.436	000.003	000.747	012.951	000.027	000.024		000.054	00397.607

3.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

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

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

- Vehicle Exhaust Emissions per Phase

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

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

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

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

- Worker Trips Emissions per Phase

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

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

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

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

- Vender Trips Emissions per Phase

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

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

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

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

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Coastal Zone Management Act Federal Consistency Determination

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Draft

Coastal Zone Management Act Federal Consistency Determination for Runway 08-26 and Taxiway Shoulders at Joint Base Langley-Eustis – Langley Air Force Base, Virginia

This document provides the Commonwealth of Virginia with a Consistency Determination under the Coastal Zone Management Act (CZMA) section 307(c)(1) (or [2]) and 15 Code of Federal Regulations (CFR) Part 930, subpart C, for the proposed construction of asphalt pavement shoulders along the borders of Runway 08-26 (Figure 1) and various taxiways at Joint Base Langley-Eustis – Langley AFB (JBLE – Langley), Virginia. The information in this Consistency Determination is provided pursuant to 15 CFR § 930.39. The federally approved Virginia Coastal Management Program (CZMP) is a network of Virginia state agencies and local governments that administers enforceable laws, regulations, and policies that protect the state's coastal resources and fosters sustainable development. The Commonwealth of Virginia can require that federal actions are consistent with the state's CZMP laws and enforceable policies. The Virginia Department of Environmental Quality (DEQ) is the lead agency for Virginia's networked CZMP.

Proposed Federal Agency Activity

A Draft Environmental Assessment (EA) and proposed Finding of No Significant Impact (FONSI) / Finding of No Practicable Alternative (FONPA) is being prepared by the Department of the Air Force (DAF) to analyze the impacts of the construction of runways and taxiways at JBLE-Langley, Virginia. The purpose of the Proposed Action is to correct significant deficiencies of Runway 08-26 and its taxiways regarding the presence of paved shoulders and their current geometry.

The need for the Proposed Action is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The lack of paved shoulders affects long-term mission readiness. Currently, the runway operates under operational waivers which permit JBLE – Langley's mission to continue despite the lack of suitable off-runway paved shoulders, albeit under restrictions on allowable aircraft loads that aim to slow the rate of deterioration.

Department of Defense (DoD) Unified Facilities Criteria (UFC) provide planning, design, construction, sustainment, restoration, and modernization criteria. The following UFC criteria are currently deficient at JBLE – Langley: a combined runway and shoulder hard surface width of 170 feet for fighter aircraft, with at least 2 feet of paved surface beyond runway edge lights, and taxiways to have a paved shoulder width of 10 feet or greater and 25 feet or greater on the outside of any turn equal to or greater than 90 degrees. Existing shoulder pavement across the airfield would be demolished and existing decommissioned pavement south of Runway 08-26 would be removed. The proposed pavement sections for the new shoulders would be 3.5 inches of asphalt surface course and 6 inches of stone base aggregate.

Under the Proposed Action, existing utilities would be identified and protected in place to the maximum extent possible. Airfield pavement markings would be removed and replaced according to final project design, and new runway and taxiway pavement edge markings would be constructed. Existing runway and taxiway edge lighting, duct banks, handholes, junction chamber plazas, and other newly installed electrical infrastructure would remain in place to the maximum extent possible. All existing signage would remain in its current location. Stormwater management improvements are included in the Proposed Action to handle the increases in impervious surface area within the project area. Stormwater management would be completed in compliance with the Virginia Pollutant Discharge Elimination System (VPDES) Construction General Permit and

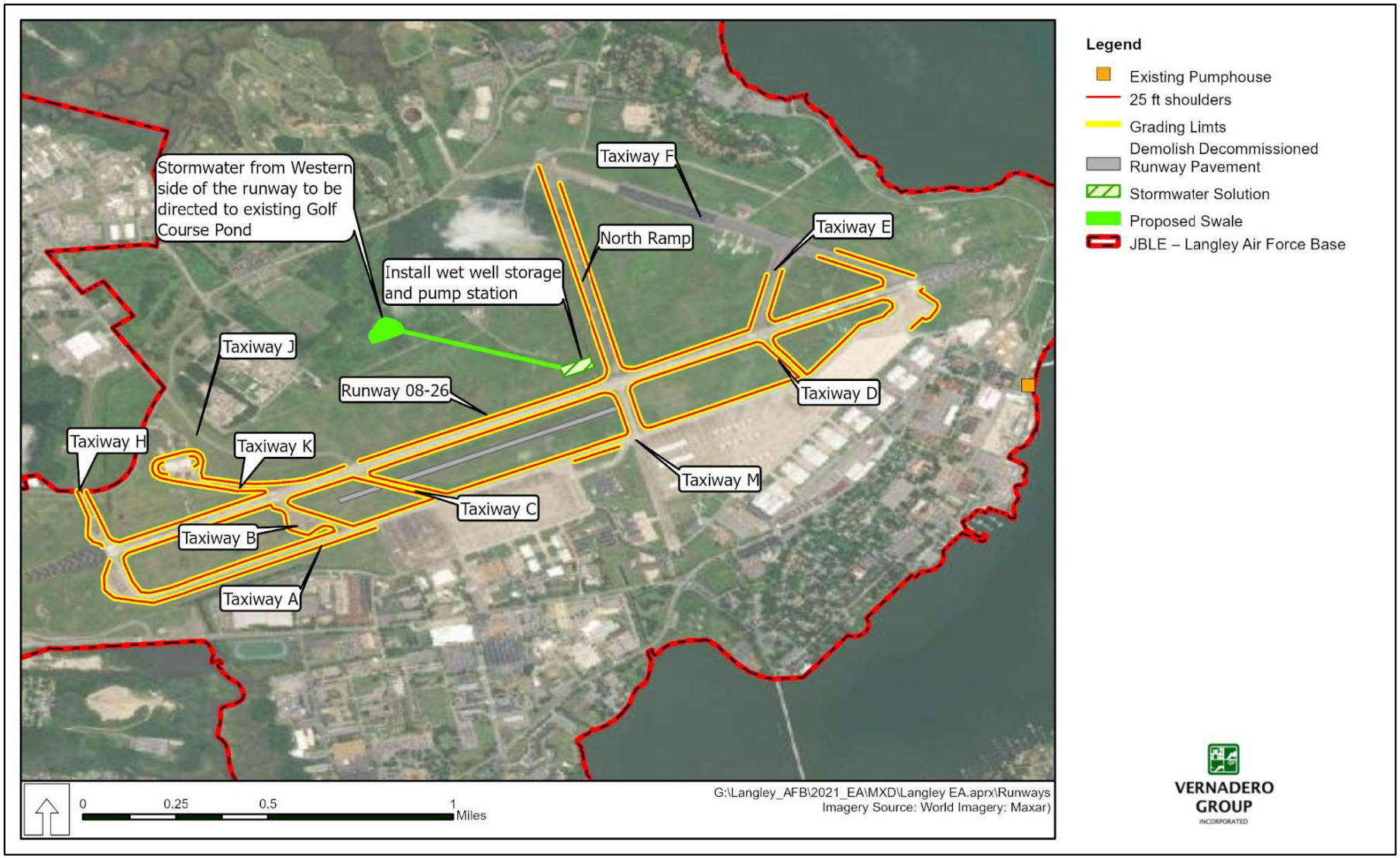

Figure 1. Proposed Action of Runway 08-26 taxiways and shoulders repair on Joint Base Langley Eustis – Langley Air Force Base

would address changes in runoff volume and pollutant loading through implementation of a Stormwater Pollution Prevention Plan (SWPPP). This SWPPP would describe Best Management Practices (BMPs) and erosion and sediment control measures. BMPs may include water quality swales and soil amendments for improved sheet flow from proposed shoulders

Environmental Consequences of the Proposed Action

Potential effects on the land or water uses or natural resources of Virginia from the Proposed Action are provided in the EA in the following:

Section 3.2 Air Quality and Climate Change.

Implementation of the Proposed Action would generate air emissions that would impact air quality in an adverse way, but these emissions are expected to be short term and minor. Under the Proposed Action, the primary source of air emissions would be from activities associated with construction and earth disturbance, which would be temporary in nature. It is anticipated that suitable fugitive dust control measures would be employed during construction activities to mitigate fine particulate emissions.

Impacts on air quality would be minor as criteria pollutant emissions from construction activities would be intermittent and short term. Further, it is anticipated that all relevant federal and state regulations, including any requirements to obtain a permit, would be followed to limit impacts on air quality. JBLE-Langley would comply with applicable Virginia Department of Environmental Quality (VDEQ) air regulations, including those for control of visible emissions and fugitive dust emissions (9 VAC 5-50-60 et seq), open burning (9 VAC 5-130-10 et seq.) and permits for fuel-burning equipment (9 VA C 5-80-1100 et seq.), such as the emergency generator. The emergency generator at the pump station is the only new stationary air emissions source that would operate permanently once construction is completed. Emissions from the operation of the generator are not significant.

Total carbon dioxide (CO2e) emissions for the Proposed Action are estimated to be approximately 1,092 tons. Based on VDEQ data, the Proposed Action would account for about 0.0011 percent of the VDEQ's greenhouse gases (GHG) emissions. Also, the Proposed Action GHG operational emissions when combined with GHG actual emissions of approximately 18,000 tons for JBLE-Langley are well below the 27,563 tons per year threshold below which facilities are not required to report GHG emissions to Environmental Protection Agency (EPA). Estimated volatile organic compound (VOC) and nitrogen oxide (NO_x) emissions from construction activities are well below the 100 tons per year (tpy) *de minimis* threshold for General Conformity and would not contribute to a violation of any federal, state, or local air regulations. Emissions from all other remaining criteria pollutants are well below their relevant insignificance indicator emission levels.

Implementation of the Proposed Action would result in carbon monoxide (CO), VOC, and NO_x emissions from vehicular operations; however, these emissions are minor, and the duration would be short and intermittent. Therefore, impacts on air quality in combination with other projects would not be significant. GHG emissions are anticipated to be generated because of vehicular operations, but they are minor, temporary, and intermittent and are not likely to add to the regional GHG levels in any meaningful way. Particulate matter (PM_{10}) emission increases would be intermittent and short in duration (lasting a few days).

Section 3.3 Aesthetics and Visual Resources.

Implementation of the Proposed Action would have no significant impacts on visual resources. The proposed runway and taxiway shoulders and airfield storm drainage and grading would not change the general appearance of the airfield.

Section 3.4 Geological Resources.

Implementation of the Proposed Action would not be expected to result in short- or long-term adverse effects on geology or topography. Excavation would be approximately 8" to 14" and would not involve the penetration or disturbance of underlying geologic strata, would not disturb or impact unique or noteworthy geologic features underlying JBLE-Langley, and would not alter the overall terrain and contours of the flightline, an area that has been extensively graded. Construction would result in the alteration of soil layer structure, soil compaction, and expose soils to erosion from wind and water. Adherence to the SWPPP and applicable BMPs would minimize impacts on soils. Soils disturbed during construction would either be developed per BMPs or restored to a vegetated or otherwise permeable condition, preventing, or minimizing the potential for ongoing erosion. Additionally, implementation of the Proposed Action would be phased so not all soil disturbance would occur simultaneously, further minimizing impacts

Section 3.5 Water Resources.

Impacts on surface water and wetlands were previously analyzed in the EA for Airfield and Drainage Projects at Joint Base Langley-Eustis, February 2021 (JBLE – Langley 2021), which is hereby incorporated by reference. Removal of all surface water features and wetlands within the airfield has been permitted by the United States Army Corps of Engineers (USACE) under permit # NAO-2017-00574 / VMRC# 17-V0458, with a timeline of completion ending June 21, 2028. All work in the wetlands would be conducted in accordance with this permit, including all terms and conditions, which include compensatory mitigation to ensure impacts are below the level of significance. The Proposed Action would be implemented in conjunction with or after Phases 2 and 3 of the previously examined airfield drainage project.

The Proposed Action would result in approximately 30.17 acres of g impervious surfaces, which could increase stormwater flow, erosion potential, and decrease infiltration rates for groundwater recharge. All stormwater management would be in accordance with state regulations (VDEQ stormwater requirements 9VAC25-870-66 and 9VAC25-870-63; VPDES) and the Federal Energy Independence and Security Act, and the implementation of a SWPPP. This SWPPP would describe BMPs and erosion and sediment control measures. Installation of new stormwater management structures or improvement of existing stormwater management structures would include flat-bottom swales, utilization of existing slot drains, wet well storage and pump station to direct stormwater into a controlled pond, installation of gates and backflow prevention at outfalls, installation of stormwater elements and element line, and utilization of a pumphouse to direct stormwater

Short-term, minor adverse impacts on stormwater drainage and ground water could occur from an increase in impervious surface. There would be negligible long-term adverse impacts on surface water and stormwater management from increased runoff. Long-term beneficial impacts would result from improved stormwater management structures.

The Proposed Action would occur within the 100-year and 500-year floodplains. However, there would be no significant adverse effects on the floodplain from implementation of the Proposed Action because the runway and taxiway improvements would not modify floodplain hazard conditions or violate any floodplain laws or regulations.

Section 3.6 Biological Resources.

The Proposed Action would have no significant adverse effects on native vegetation as only turf grass would be removed, limited to within 25 feet of existing runway and taxiway shoulder pavement. Installation of flat bottom swales on each side of the runway, and a wet well storage and pump station on the airfield that would direct stormwater from the runway to the existing golf

course pond. Habitat adjacent to the project area is limited to managed lawns, runway surfaces, decommissioned pavement, and man-made drainage ditches.

Ground disturbance may impact invasive plants, potentially facilitating opportunities for expansion. All construction projects would implement BMPs to reduce the spread of invasive species.

Implementation of the Proposed Action may result in short-term indirect minor adverse impacts on breeding songbirds utilizing urban green space on the golf course.

Federal and state listed species with the potential to occur on JBLE – Langley are listed in **Table 1**.

While it has not been documented on JBLE – Langley, habitat for the year-round resident loggerhead shrike is found on the Base and includes open areas with short vegetation, scattered shrubs and low trees, pastures, riparian areas, and golf courses. It is unlikely that loggerhead shrikes would be adversely impacted.

No impacts on the piping plover or roseate tern would occur; there is no suitable nesting or foraging habitat on JBLE – Langley for either species.

No impacts on the red knot, black rail, gull-billed tern, or Wilson's plover would occur; there is no suitable habitat within the area of the Proposed Action.

The potential for adverse impacts on bats would be minor. Bats may forage for insects over airfields; however, none of the typical construction activities would impact bats foraging in the area and there is no roosting habitat or hibernacula in the project area. Any construction activities during the night may disrupt bats foraging within the airfield. No impacts on the canebrake rattlesnake would occur; there is no suitable habitat within the area of the Proposed Action.

No impacts on the monarch butterfly would occur; there is no suitable habitat within the area of the Proposed Action.

The Air Force has made a *no effect* determination for the listed sea turtles, listed bat species, red knot, roseate tern, eastern black rail, monarch butterfly, West Indian manatee, Atlantic sturgeon, shortnose sturgeon, and rusty patched bumblebee.

Table 1. Federal and State Listed Species Documented or with the Potential to Occur on or Adjacent to Joint Base Langley-Eustis – Langley Air Force Base, Virginia

Species	Federal Status	State Status	JBLE – Langley
Birds			
Eastern Black Rail (*Laterallus jamaicensis* ssp. *jamaicensis*)	T	E	Potential
Piping Plover (*Charadrius melodus*)	T	T	Potential[1]
Red Knot (*Calidris canutus rufa*)	T	T	Observed
Roseate Tern (*Sterna dougallii)*	E	E	Potential[1]
Loggerhead Shrike (*Lanius ludovicianus*)	--	T	Potential[1]
Loggerhead Shrike, Migrant (*L. ludovicianus migrans*)	--	T	Potential[1]
Peregrine Falcon (*Falco peregrinus*)	--	T	Potential[1]
Gull-Billed Tern (*Sterna niloticai*)	--	T	Observed
Wilson's Plover (*Charadrius wilsonia*)	--	E	Potential
Henslow's Sparrow (*Ammodramus henslowii*)	--	T	Potential[1]

Species	Federal Status	State Status	JBLE – Langley
Mammals			
Northern Long-Eared Bat (*Myotis septentrionalis*)	E	T	Acoustic[2]
Indiana Bat (*Myotis sodalis*)	E	E	Acoustic[3]
Little Brown Bat (*Myotis lucifugus*)	--	E	Acoustic
Tricolored Bat (*Perimyotis subflavus*)	C	E	Potential[4]
Rafinesque's Eastern Big-Eared Bat (*Corynorhinus rafinesquii macrotis*)	--	E	Acoustic
West Indian Manatee (*Trichechus manatus*)	E	E	Unlikely[1]
Reptiles			
Kemp's (= Atlantic) Ridley Turtle (*Lepidochelys kempii*)	E	E	Unlikely[1]
Hawksbill Turtle (*Eretmochelys imbricata*)	E	E	Unlikely[1]
Leatherback Turtle (*Dermochelys coriacea*)	E	E	Unlikely[1]
Loggerhead Turtle (*Caretta caretta*)	T	T	Unlikely[1]
Green Turtle (*Chelonia mydas*)	T	T	Unlikely[1]
Canebrake Rattlesnake (*Crotalus horridus*)	--	E	Potential
Amphibians			
Eastern Tiger Salamander (*Ambystoma tigrinum*)	--	E	Unlikely[5]
Mabee's Salamander (*Ambystoma mabeei*)	--	T	Unlikely[5]
Fish			
Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)	E	E	Potential
Shortnose Sturgeon (*Acipenser brevirostrum*)	E	E	Potential
Plants			
Harper's Fimbristylis (*Fimbristylis perpusilla*)	--	E	Unlikely[5]
Insects			
Northeastern Beach Tiger Beetle (*Cicindela dorsalis dorsalis*)	T	T	Unlikely
Monarch Butterfly (*Danaus plexippus*)	C	--	Observed
Rusty Patched Bumblebee (*Bombus affinis*)	E	--	Unlikely[6]

Sources: JBLE – Langley 2019; USFWS 2023; VDWR 2023
JBLE – Langley – Joint Base Langley-Eustis, Langley Air Force Base; E – endangered; T – threatened; C – candidate

1 These species were only identified in the VDWR FWIS (VDWR 2023) as potentially occurring within a 3-mile radius around the Base centers, but they are not identified in the Base Integrated Natural Resource Management Plans or the USFWS Information for Planning and Consultation website (for federally listed species).

2 Due to weak call characteristics recorded during acoustical surveys, confidence in the positive identification of the northern long-eared bat is low; therefore, presence of this species should be categorized as possible but unconfirmed.

3 Documented acoustically during past surveys; however, the most recent 2019 acoustic and mist-net surveys did not identify the presence of the Indiana bat.

4 The tricolored bat has the potential to occur on Main Base Langley, but it was only observed visually at the Langley Big Bethel Reservoir during the 2019 acoustic and mist-net surveys.

5 These species were only identified in the VDWR FWIS (VDWR 2023) as potentially occurring within a 3-mile radius of the Base; however, multiple surveys have not documented these species on the Base, and optimal habitat is not found on Main Base Langley.

6 Listed in the 2017 *US Air Force Pollinator Conservation Reference Guide* as possibly present; however, its distribution in Virginia appears to be in counties north and west of the tidewater region of southeast Virginia (82 Federal Register 3186, *Endangered and Threatened Wildlife and Plants; Endangered Species Status for Rusty Patched Bumblebee; Final Rule*)

Section 3.7 Health and Safety

There would be no adverse or significant, short-or long-term impacts on the safety of the JBLE – Langley community and contractor support associated with implementation of the Proposed Action. All contractors involved in construction would be responsible for following federal Occupational Safety and Health Administration (OSHA) regulations and are required to conduct these activities in a manner that does not increase risk to workers, the DAF community, or the public. OSHA regulations address the health and safety of people at work, and the regulations cover potential exposure to a wide range of chemical, physical, and biological hazards, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure via administrative or engineering controls, substitution, use of personal protective equipment, and availability of safety data sheets.

Improvements to Runway 08-26 and taxiways would generally enhance safety during all uses of the runway and taxiways by members of the JBLE – Langley community and installation partners.

Enforceable Policies

The Virginia Coastal Resources Management Program contains the below enforceable policies (A-I).

1. Tidal and Non-Tidal Wetlands

The purpose of this policy is to preserve tidal and non-tidal wetlands, prevent their despoliation and destruction, and accommodate necessary economic development in a manner consistent with wetlands preservation.

The Proposed Action would not result in the fill of wetlands within and adjacent to the airfield because removal of these wetlands, previously described in the 2021 Final Environmental Assessment for Airfield and Drainage Projects (JBLE – Langley 2021), has been permitted by the U.S. Army Corps of Engineers (permit number NAO-2017-00574) and Virginia Department of Environmental Quality (VWP permit # 17-V0458).

Because the DAF would adhere to all required mitigation actions described in the permits, there would be no significant impact on wetlands.

2. Subaqueous Lands

This management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, other reasonable and permissible uses of state waters and state-owned bottomlands, adjacent or nearby properties, anticipated public and private benefits, water quality, and submerged aquatic vegetation.

Impacts on subaqueous lands were previously described in JBLE 2021. No additional impacts would occur under the Proposed Action.

3. Dunes and Beaches

This program's purpose is to preserve and protect coastal primary sand dunes and beaches, to prevent their despoliation and destruction, and whenever practical, to accommodate necessary economic development in a manner consistent with the protection of such features.

There are no sand dunes or beaches located in the project area; therefore, no impacts are anticipated.

4. Chesapeake Bay Preservation Areas

This policy is focused on protecting and improving the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effect of human activity upon these waters. The policy ensures that land use and development performance criteria and standards are implemented in Chesapeake Bay Preservation Areas (CBPAs). The designated CBPAs are composed of the following: Resource Protection Areas (RPA), Resource Management Areas (RMA), and Intensely Developed Areas (IDA). Each type of CBPA is subject to performance criteria and development criteria.

JBLE-Langley is required by the federal Coastal Zone Management Act to follow the Chesapeake Bay Preservation Act (Virginia Code §10.1-2100) to the maximum extent practicable. JBLE-Langley established 100-foot upland buffers as the Resource Protection Areas at tidal creeks, streams, and wetlands in conjunction with the 100-foot buffers established by the city of Hampton. The objective is to maintain these buffers as vegetated with native vegetation to the greatest extent practical. The Proposed Action would not change the existing vegetation buffers that are required for CBPAs.

5. Marine Fisheries

This program stresses the conservation and promotion of the seafood and marine resources, including fish, shellfish, and marine organisms, and seeks to manage fisheries to maximize food production and recreational opportunities within the Commonwealth's territorial waters. Marine fishery management shall be based upon the best scientific, economic, biological, and sociological information available, shall be responsive to the needs of interested and affected citizens, shall promote efficiency in the utilization of the resources, and shall draw upon all available capabilities in carrying out research, administration, management, and enforcement.

The Proposed Action does not include marine fishing or impact the management of marine fisheries.

The Proposed Action would occur on the inland portion of JBLE – Langley, therefore, no impacts on marine fisheries are anticipated.

6. Wildlife and Inland Fisheries

This policy states that no person shall import, export, take, pursue, kill, or possess in the Commonwealth any fish or wildlife, or stock any species of fish in inland waters, in a manner that negatively impacts the Commonwealth's efforts in conserving, protecting, replenishing, propagating, and increasing of the supply of game birds, game animals, fish and other wildlife of the Commonwealth. The policy also states that no person shall harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, possess, collect, transport, sell or offer to sell, or attempt to do so, any species of fish or wildlife listed as threatened or endangered by the Board of Game and Inland Fisheries, except under express conditions.

The Proposed Action would have no impacts on wildlife and inland fisheries.

7. Plant Pests and Noxious Weeds

This policy states that no person shall sell, barter, offer for sale, move, transport, deliver, ship, or offer to ship into or within the Commonwealth any plant pests in any living stage, unless such plant pests are not injurious, are generally present already, or are for scientific purposes subject to specified safeguards. No person shall move, transport, deliver, ship, or offer for shipment into or within the Commonwealth any noxious weed, or part thereof, unless such noxious weed is generally present already or it is for scientific purposes subject to prescribed standards.

The Proposed Action does involve ground disturbance; however, any disturbed areas not paved would be revegetated with native species to prevent the spread of invasive species.

8. Commonwealth Lands

A. Virginia Department of Wildlife Resources

Dams and Fish Passage: Any person owning or having control of any dam or other obstruction in the streams of the Commonwealth that may interfere with the free passage of anadromous and other migratory fish shall provide every such dam or other obstruction with a suitable fishway, to the extent necessary.

Back Bay: Unless determined to not be harmful for fish and wildlife resources or habitats, no person shall drill, dredge, or conduct other operations designed to recover or obtain shells, minerals or any other substance on lands owned by or under the control of the Commonwealth under Back Bay, its tributaries and the North Landing River from the North Carolina line to North Landing Bridge.

Damage to Boundary Enclosures and Entry to Refuges: No person shall damage the boundary enclosure of or enter a game refuge owned, leased, or operated by the Board of Game and Inland fisheries for the purpose of molesting any bird or animal, or permit his dog or livestock to go thereon.

Protection of Aquatic and Terrestrial Habitats Used or Owned by DGIF: No person shall damage or destroy any pond, pool, flume, dam, pipeline, property, or appliance belonging to, controlled by or being utilized by DGIF or its Board; or interfere with, obstruct, pollute, or diminish the natural flow of water into or through a fish hatchery.

B. Virginia Department of Conservation and Recreation

Protection of Virginia State Parks: For purposes of these policies, "park" means all designated state parks, parkways, historical and natural areas, natural area preserves, sites, and other areas under the jurisdiction of the Department of Conservation and Recreation. No person shall damage, pollute, or otherwise alter any natural or manmade feature of any park. Research and educational programming that involves limited and specified sampling or collecting of resources can be conducted to further the understanding of the specified natural and cultural resources of a site. No person shall dispose of any garbage or waste material in any part of a park other than in designated containers.

Fire Prevention: No person shall kindle, build, maintain, or use a fire in any park other than in places provided or designated for such purposes, and only if continuously supervised by a competent person over 16 years of age. No person shall throw away any lighted match, cigarette, cigar, or other burning object in the confines of any park until the object is entirely extinguished.

Hunting and Fishing in State Parks: No person shall hunt or molest in any way any bird or animal, or possess any wild bird or animal, within the confines of any park, except in designated hunting areas. Likewise, no person shall take fish in any park unless done via bait fishing by cast net, crabbing by line and net, or licensed fishing by hook and line, all of which are limited to areas in each park designated for those activities.

Feeding Wildlife in State Parks Prohibited: No person shall feed wildlife in any park, except for DCR sponsored programmatic activities. 4 Va. Admin. Code § 5-30-422 Boating and Vehicles in State Parks: No person shall operate a boat in a bathing area in a park. It is illegal to operate a motor vehicle in any area of a park that is not designated for or customarily used by motor vehicles, unless engaged in fire control, park maintenance, or other necessary park-related activities. Further, no person shall operate, anywhere in a park, a vehicle that is excessively loaded.

The Proposed Action does not involve dams, the Back Bay area, game refuges, land owned by DWR, or Virginia State Park lands.

9. Point Source Air Pollution

In addition to the requirements of the Clean Air Act established by the Federal Government and the Commonwealth of Virginia, which in accordance with 15 CFR § 923.45 are part of the Commonwealth's Coastal Zone Management Program, the following air quality policies apply: It is the policy of the Commonwealth, after observing the effects of air pollution, to abate, control, and prohibit air pollution throughout the Commonwealth. Policies for asphalt paving operations, open burning, fugitive dust emissions, state operating permits, and new sources reviews are further described.

Implementation of the Proposed Action would temporarily generate air emissions during construction activities. Impacts would be controlled using construction practices consistent with policies of 9VAC5-50-60. An emergency generator at the pump station would be the only new stationary air emissions source to operate permanently once construction is completed. The generator would be covered under the State Operating Permit. As discussed in Section 3.2 above, emissions from the generator would not be significant.

10. Point Source Water Pollution

This policy focuses on protecting existing high quality state waters and restoring all other state waters to such condition of quality that any such waters will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them; safeguard the clean waters of the Commonwealth from pollution; prevent any increase in pollution; reduce existing pollution; promote and encourage the reclamation and reuse of wastewater in a manner protective of the environment and public health; and promote water resource conservation, management and distribution, and encourage water consumption reduction in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

Short-term, minor adverse impacts on surface water and stormwater could occur during removal and construction of runways and taxiways. Impacts on surface water from these activities could include short-term increased soil erosion, runoff, and sedimentation.

In the long term, impacts on surface water and stormwater from implementation of the Proposed Action would be beneficial. The Proposed Action would increase stormwater management structures and filtration.

11. Nonpoint Source Water Pollution

This policy aims to control stormwater runoff to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater; to control soil erosion and sediment deposition in order to prevent unreasonable degradation of properties, stream channels, state waters, and other natural resources; and to otherwise act to control nonpoint source water pollution to ensure the general health, safety, and welfare of the citizens of the Commonwealth.

The potential impacts are the same as those described above in **10. Point Source Water Pollution.** In addition, JBLE – Langley maintains a Stormwater Pollution Prevention Plan, updated annually, that addresses stormwater impacts and nonpoint source pollution.

12. Shoreline Sanitation

The purpose of this program is to ensure that sewage is disposed of in a safe and sanitary manner that protects the public health and welfare and the environment.

The Proposed Action does not impact any sewage systems or propose the installation of a new sewage system.

Advisory Policies for Geographic Area of Particular Concern

A. Coastal Natural Resource Areas

Coastal Natural Resource Areas are areas that have been designated as vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. These areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas include the following resources: wetlands, aquatic spawning, nursing, and feeding grounds, coastal primary sand dunes, barrier islands, significant wildlife habitat areas, public recreation areas, sand gravel resources, and underwater historic sites.

Wetland impacts are the same as those described in **1. Tidal and Non-Tidal Wetlands.**

Coastal primary sand dunes, barrier islands, significant wildlife habitat areas, public recreation areas, sand gravel resources, and underwater historic sites are not located on JBLE.

B. Coastal Natural Hazard Areas

This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind-, tidal-, and storm-related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are highly erodible areas and coastal high hazard areas, including flood plains.

The Proposed Action does not involve construction of buildings or structures in coastal natural hazard areas.

C. Waterfront Development Areas

These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are commercial ports, commercial fishing piers, and community waterfronts.

The Proposed Action would not impact areas suitable for waterfront activities.

Advisory Policies for Shorefront Access Planning and Protection

A. Virginia Public Beaches

These public shoreline areas will be maintained to allow public access to recreational resources.

There are no public beaches within the project area; consequently, the Proposed Action would not affect public access to beaches.

B. Virginia Outdoors Plan (VOP)

The VOP, which is published by Virginia's Department of Conservation and Recreation (DCR), identifies recreational facilities in the Commonwealth that provide recreational access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

The Proposed Action is not located near recreational resources and would have no impact on the VOP.

C. Parks, Natural Areas, and Wildlife Management Areas

The recreational values of these areas should be protected and maintained.

There are no public parks, natural areas, or wildlife management areas on JBLE – Langley.

D. Waterfront Recreational Land Acquisition

It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

The Proposed Action does not limit the ability of the Commonwealth in any way to acquire, preserve, or maintain waterfront recreational lands.

E. Waterfront Recreational Facilities

Boat ramps, public landings, and bridges shall be designed, constructed, and maintained to provide points of water access when and where practicable.

The Proposed Action does not involve the design, construction, or maintenance of any boat ramps or public landings.

F. Waterfront Historic Properties

The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Virginia Department of Historic Resources.

No historic shorefront properties would be affected by the Proposed Action.

Consistency Determination

Based upon the information and analysis presented above and included in the EA, the Air Force finds that the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Resources Management Program.

Pursuant to 15 CFR § 930.41, the Virginia Coastal Resources Management Program has 60 days from the receipt of this letter in which to concur with or object to this Federal Consistency Determination or to request an extension under 15 CFR § 930.41(b). Virginia's concurrence will be presumed if its response is not received by JBLE – Langley on the 60th day from receipt of this determination.

_____ _____

Date Signature

References

Department of the Air Force (DAF). 2017. *US Air Force Pollinator Conservation Reference Guide*. Air Force Civil Engineer Center, San Antonio, Texas. 182 pp.

Joint Base Langley – Eustis – Langley Air Force Base (JBLE – Langley). 2019. *JBLE – Langley Virginia Integrated Natural Resources Management Plan, 2019-24*. Headquarters 633D Air Base Wing, Joint Base Langley – Eustis, Virginia. 2 June 2019.

Joint Base Langley – Eustis – Langley Air Force Base (JBLE – Langley). 2021. Final Environmental Assessment for Airfield and Drainage Projects at Joint Base Langley-Eustis Hampton, Virginia. Headquarters 633D Air Base Wing, Joint Base Langley – Eustis, Virginia. February 2021.

U.S. Fish and Wildlife Service (USFWS). 2023. Information for Planning and Consultation. Accessed 6 February 2023. <https://ipac.ecosphere.fws.gov/>.

Virginia Department of Wildlife Resources (VDWR). 2023. Fish and Wildlife Information Service. Accessed 13 February 2023. <https://vafwis.dgif.virginia.gov/fwis/?Menu=Home>.

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U.S. Fish and Wildlife Service Information for Planning and Consultation List of Threatened and Endangered Species

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032

In Reply Refer To: April 04, 2023
Project Code: 2023-0045358
Project Name: JBLE - Langley Runways and Taxiways Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Project Code in the header of this

letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

PROJECT SUMMARY

Project Code: 2023-0045358
Project Name: JBLE - Langley Runways and Taxiways Project
Project Type: Airport - Maintenance/Modification
Project Description: The purpose of the Proposed Action is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The need for the Proposed Action is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The lack of paved shoulders affects long-term mission readiness.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.087531150000004,-76.3572282034651,14z

Counties: Hampton County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Oystercatcher *Haematopus palliatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

NAME	BREEDING SEASON
Black Skimmer *Rynchops niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Blue-winged Warbler *Vermivora pinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Gull-billed Tern *Gelochelidon nilotica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31
Hudsonian Godwit *Limosa haemastica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Purple Sandpiper *Calidris maritima* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

NAME	BREEDING SEASON
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

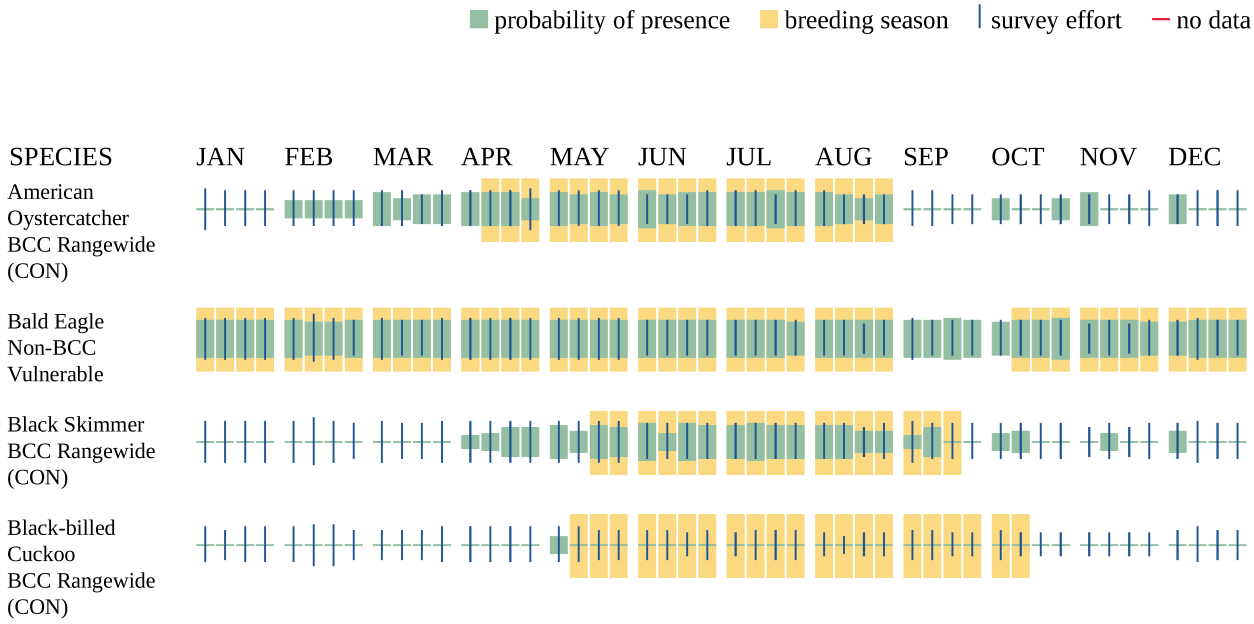
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

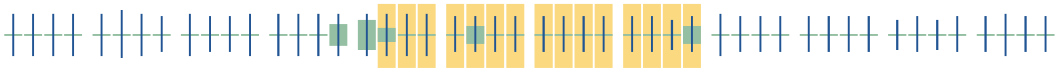
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.




Blue-winged Warbler BCC - BCR
Bobolink BCC Rangewide (CON)
Canada Warbler BCC Rangewide (CON)
Chimney Swift BCC Rangewide (CON)
Gull-billed Tern BCC Rangewide (CON)
Hudsonian Godwit BCC Rangewide (CON)
Lesser Yellowlegs BCC Rangewide (CON)
Prairie Warbler BCC Rangewide (CON)
SPECIES
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Prothonotary Warbler BCC Rangewide (CON)
Purple Sandpiper BCC Rangewide (CON)
Red-headed Woodpecker BCC Rangewide (CON)
Ruddy Turnstone BCC - BCR
Rusty Blackbird BCC - BCR
Short-billed Dowitcher BCC Rangewide (CON)
Willet BCC Rangewide (CON)

Wood Thrush
BCC Rangewide
(CON)



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPAC USER CONTACT INFORMATION

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LEAD AGENCY CONTACT INFORMATION

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U.S. Fish and Wildlife Service Record of Project Representative's No Effect Determination for JBLE - Langley Runways and Taxiways Project

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
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Phone: (804) 693-6694 Fax: (804) 693-9032

In Reply Refer To: March 20, 2023
Project code: 2023-0045358
Project Name: JBLE - Langley Runways and Taxiways Project
IPaC Record Locator: 542-123849760

Federal Nexus: yes
Federal Action Agency (if applicable): Air Force

Subject: Record of project representative's no effect determination for 'JBLE - Langley Runways and Taxiways Project'

Dear Kenneth Erwin:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 20, 2023, for 'JBLE - Langley Runways and Taxiways Project' (here forward, Project). This project has been assigned Project Code 2023-0045358 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter.

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action

and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* Threatened
- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/ coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Virginia Ecological Services Field Office and reference Project Code 2023-0045358 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

JBLE - Langley Runways and Taxiways Project

2. Description

The following description was provided for the project 'JBLE - Langley Runways and Taxiways Project':

> The purpose of the Proposed Action is to correct significant deficiencies regarding the presence of paved shoulders and their current geometry. The need for the Proposed Action is driven by JBLE – Langley's requirement to support unrestricted airfield operations 24 hours a day, 7 days a week, and in inclement weather conditions. There are currently no suitable off-runway paved surfaces for pilots to use as safety exit areas in the event of mechanical issues, in-flight emergencies, or weather anomalies. The lack of paved shoulders affects long-term mission readiness.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.087531150000004,-76.3572282034651,14z

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (Myotis septentrionalis). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

3. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   No

5. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

6. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

7. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

   If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

   Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

   Yes

PROJECT QUESTIONNAIRE

Will all project activities by completed by April 1, 2024?

No

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